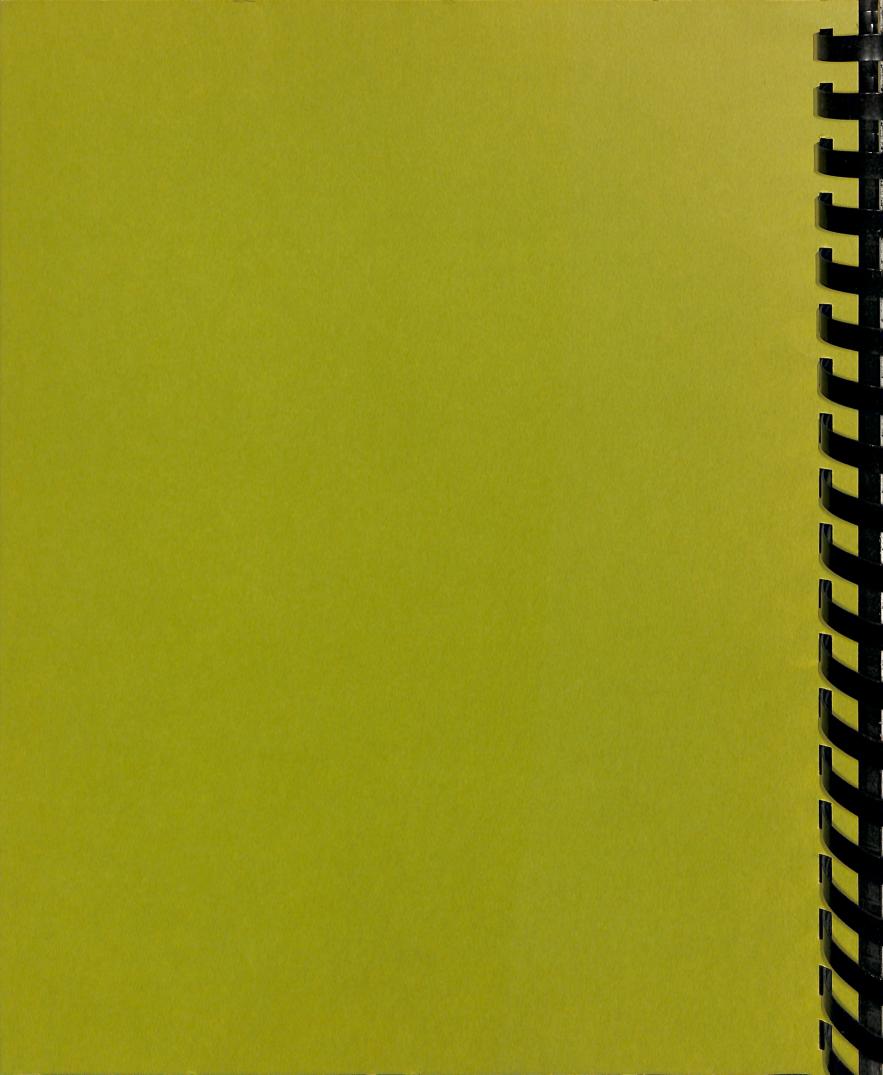
Ef-panded Initial Study
For
Maris Industrial Subdivision



EXPANDED INITIAL STUDY

FOR

MARIS INDUSTRIAL SUBDIVISION (EA-50-77)

Vacaville Planning Department
December 22, 1977

MEMORANDUM

TO: City Manager

FROM: Planning Director

SUBJECT: Maris Industrial Subdivision

A. Environmental Assessment - Expanded

Initial Study (EA-50-77)

At the request of the City Council on November 8, 1977, the following information has been compiled as a supplement to the Initial Environmental Study for the Maris Industrial Subdivision. The expanded sections pertain to the issues of land use, drainage, waste water and air quality. Additionally, the applicant has contracted with the firm of Reimer Associates to provide an on-site noise measurement. A general description and scope of environmental review is summarized as follows:

Land Use

A chronology of events describing the historic evolution of General Plan designations, zoning and land uses for the Maris site and surrounding vicinity has been prepared. There was also a consideration of the Elmira Road Industrial Corridor and evalution of industrially planned lands in the Vacaville Planning Area.

Drainage

Based on existing documentation and description of proposed on-site improvements for the Maris Industrial Subdivision, the run-off potential and an evaluation of the site in relationship to the drainage basin and down-stream capacity of Alamo Creek, has been assessed. The Public Works Department has evaluated likely impacts.

Wastewater Treatment

The Public Works Department has prepared an evaluation of the Easterly Sewage Treatment Plant's ability to treat industrial wastewater flows. Consideration of quantities and qualities of wastewater treatment with analysis of the City's Wastewater Discharge Ordinance and water quality discharges were considered.

Air Quality

Staff has received a response from the Yolo-Solano Air Pollution Control District commenting on uses allowable under existing zoning and descriptions of air pollution potential which may be expected from new industries. Staff has also compared impacts in regard to industrial users located other industrial areas of the City. Although additional information is being prepared by Reimer Associates, effective control over potential air pollutants remains vested with the Yolo-Solano Air Pollution Control District.

Noise

Staff has also initiated a review of noise potential likely to emanate from noise of Elmira Road, between Nut Tree and Leisure Town Roads is approximately

60+ decibels. It is expected that future urbanization of the southeastern portion of Vacaville will produce noise levels along Elmira Road of a similar magnitude. It should be noted, however, that Ordinance 458, Section 6.5c presently prohibits any use in Light Manufacturing (M-L) zone which will omit more than 45 decibels, measured at property line. Thus the proposed project will not be permitted to approach even the 1977 ambient noise level.

Analyses relating to Land Use considerations, drainage capacities and wastewater treatment were compiled entirely by City Staff. Additional information pertaining to Air Quality evaluation and on-site noise measurement is being prepared by Reimer Associates. Although these reports may not be available for review prior to the City Council meeting, it is firmly believed by Staff that such impacts may be adequately assessed and effectively mitigated by the recommended Conditions of Approval.

Alternate Actions For Maris Industrial Park

The City Council, if they so determine, may grant a Negative Declaration of no significant environmental impact. This determination must be supported by the application of specific mitigation measures. Staff recommended conditions "A" through J" and Mitigation Measures for Maris Industrial Park Tentative Subdivision Map. The City Council may also determine, based upon their review and public testimony that the Initial Studies are inadequate in assessing the significant environmental impacts, and that community concerns can only be addressed through the preparation of a full environmental impact in accordance with the California Environmental Quality Act.

Staff Recommendation

In the judgement of Staff, the available information contained in the Initial Study and supplimentary documents are adequate to identify the significant environmental impacts likely to result from the approval and subsequent development of the Maris Industrial Subdivision. In addition, the environmental studies suggest possible measures to ensure mitigation of identified potential detrimental impacts.

As a basis for issuing a Negative Declaration, Staff strongly recommends the following conditions and Mitigation Measures be applied as a minimum in approving the Maris Industrial Subdivision Tentative Map.

Conditions Of Approval And Mitigation Measures - Maris Industrial Subdivision Tentative Map

- A. The developer shall comply with all applicable State, County, and/or City laws, regulations, and/or ordinances.
- B. The developer shall comply all requirements of the Director of Public Works as defined in Public Works Memo No. 182, dated August 12, 1977, and Public Works Memo No. 223, dated October 13, 1977, and any other development requirements as may be stipulated by the Director of Public Works.
- C. The developer shall comply with the requirements of the Fire Chief to provide for an adequate fire protection system within the development.
- D. The developer shall provide a detailed tree grid of the subject property, prepared by licensed Civil Engineer or a licensed Land Surveyor. The developer shall make every attempt to preserve as many trees as is possible

on site. Should it be necessary to remove any Heritage Trees, the developer shall mitigate such removal by providing replacement at a ratio of three (3) trees per each Heritage Tree removed. Said replacement trees shall be of specimen size (3" to 4" trunk caliper minimum 24" box specimen). The City shall reserve the right to accept or reject any replacement materials.

- E. The developer shall provide full perimeter fencing and screen planting around the subdivision as specified:
 - 1. On the north and south property lines, adjoining the Brynes Canal and Southern Pacific Railroad Line, the developer shall provide a solid masonry fence minimum eight (8) feet above the grade of Elmira Road, a minimum fifteen (15) foot setback (Section 6.4d, minimum 10 feet required). Dense shrub and tree planting shall be installed to screen the subject property from public views.
 - 2. On the west property line, along the southerly 140 foot portion adjacent the rear of lots #16 and 17, the developer shall provide a solid masonry screen fence a minimum six (6) feet in height above the grade of Elmira Road. On remaining portions of the west property line a minimum six (6) foot screen fence shall be constructed. Dense shrub and tree plantings shall be installed to screen the subject property from public views.
 - 3. On the east property line, the developer shall provide a masonry screen fence six (6) feet minimum height above the grade of Leisure Town Road and a two (2) foot berm and a minimum twenty-five foot wide planter area (minimum side yard is 25 feet) incorporating mounding, tree and shrub planting, and a combination of turf and ground cover.
 - 4. All landscaped areas shall be provided with underground irrigation systems and permanently maintained through an owners association.
 - 5. All fencing and landscaping plans shall be reviewed and approved by the Director of Planning prior to the applicants filing for a Final Subdivision Map.
- F. The developer shall prepare in final form a set of convenents, conditions and restrictions applicable to the entire 25+ acre area. Said C.C.R.s shall be submitted for review and comment by the City. These C.C.R.s will become a part of the design review of the proposed developments. These C.C.R.s shall set forth a high standard of architecture design and materials.
- G. Accumulation of parcels for development shall not exceed 2 acres.
- H. All facilities constructed and uses reviewed shall be subject to review and certification by the Yolo-Solano Air Pollution Control District.
- I. All uses shall be approved by the Planning Commission, with appeals to the City Council if necessary.
- J. In case of exceptional circumstance, the Planning Director shall be authorized to defer completion of on-site improvements past the date of occupancy of the proposed facility provided that the developer enter into a Deferred Improvement Agreement with the City of Vacaville and provided that the

developer post with the City of Vacaville adequate bonds to insure completion of such deferred improvements.

- Control of the Cont

SUPPLEMENTAL STAFF REPORT - ELMIRA ROAD INDUSTRIAL CORRIDOR

In addition to the issues precisely related to the proposed Maris Industrial Park, there have also surfaced neighborhood complaints which may be more appropriately ascribed to the present industrial users along Elmira Road. Staff evalution of operational performance of these project users has revealed that the City could by directing Staff to pursue an aggressive zoning investigation and enforcement program for these users and alleviate much of the existing adverse situation.

Below is a summary of the existing situation which may bear consideration.

- 1. 1970-Conditions of Annexation for Kit Manufacturing, Conditon 12, "some screening of the site will be required, this screening will generally take the form of fencing and shrubery."
- 2. November 1970-Kit requested 2 variances:
 - a. Variance for a mobile home to be used as an office (located in parking area) Approved: unanimously.
 - b. Variance to delete the 10 foot landscape strip requirement along Elmira Road, Denied: unanimously.
- 3. The City deferred the installation of improvements until adjacent properties were developed, or five years, which ever came first.
- 4. Five year time period for deferred improvements expired in 1975.
 - City requested action by Coachman (new owners of Kit) to complete improvements as previously stipulated.
- 5. Feburary 26, 1976: City receives a performance bond of \$11,750 for improvement from Coachmanand requested that the work be completed within 90 days (not later than May 26, 1976).
- 6. September 1976: City noticed Coachman that the performance is mandatory.
- 7. December 1977: Insullation of improvements has not commenced for Coachman. Landscaping is minimal and unmaintained for Festival.

Zoning Enforcement proceedings should be commenced to require immediate installation of all improvements as previously agreed to. Landscaping should be installed to screen outdoor work and storage areas. Pursuant to the Zoning Ordinance and other applicable City regulations, enforcement could correct the present situation.

The following measures are suggested as examples:

- 1. Ordinance 458, Section 6.5c, required conditions:
 - c. NOISE In an M-L district, no use shall be permitted which creates a sound level beyond the boundaries of the site in excess of 45 decibels. In the M-H district no use shall be permitted which creates a sound level beyond the boundaries of the M-H district in excess of 45 decibels. Sound level shall be measured with an instrument which

is in accordance with the American Standard for Sound Level Meters, Z 24.3, and response curve "A" given in this Standard shall be used.

Enforcement of this requirement in addition to regulations concerning "public nuisances" would abate to the usage of any loud speaker systems and other devices which omit obnoxious noises which exceed City noise standards.

2. Provision of additional developed parking areas by current industrial uses impacts to the site itself, thereby alleviating conflicts with nearby residences.

Recommendation:

Should the City Council determine that Zoning Enforcement proceedings are appropriate and effective toward bringing about compliance with existing City Standards and regulations, Staff could be directed to prepare a detailed report on this matter for Council consideration.

tack Indian see made each that to provide 1982 Astronomet

Enterpts (the Europe metallines No. 498, 1971) and a particular to a particular to the Control of the Control o

a. Septimin 5.2 d. Compared at Service Class Compared to

LIST OF ATTACHMENTS

- I. Analysis of Land Use Options for Elmira Road Industrial Corridor City of Vacaville, Planning Department, December 22, 1977
 - 1. Introduction
 - 2. Background
 - 3. General Plan Map 1974 Amendments
 - 4. 'General Plan Considerations
 - A. Retain Current General Plan
 - B. Amend General Plan
 - a. Alternative I
 - b. Alternative II
 - 5. Zoning Consideration
 - 6. Staff Recommendations
 - A. Mitigation of Potential Land Use Impact
 - B. Mitigation of Existing Land Use Impact
 - 7. Appendix
 - I. Land Use Chronology of the Elmira Road Industrial Corridor
 - II. Urban Land Institute Technical Bulletin 44-1962/Survey of Industrial Use Acreage Requirements
 - III. Survey of Existing Local Uses Potentially Locating in the Maris Industrial Subdivision
 - IV. Excerpts from Zoning Ordinance No. 458
 - A. Section 6.2 a, Light Manufacturing (M-L) Use Listings
 - B. Section 5.2 d, Commercial Service (C-S) Use Listings
- II. Drainage and Wastewater Analysis for Maris Industrial Park City of Vacaville, Public Works Department Memo #267, December 20, 1977.
- III. Air Quality Analysis for Maris Industrial Subdivision City of Vacaville, Planning Department
 - 1. Yolo-Solano Air Pollution Control District correspondence dated:
 - A. May 25, 1976, Vaca Valley EIR
 - B. November 22, 1977, Maris Industrial Subdivision
 - C. December 22, 1977, Maris Industrial Subdivision
 - 2. Air Quality Excerpts from the Vacaville Southwest Sector EIR, December 1977.
 - A. Environmental Setting
 - B. Environmental Assessment
 - 3. Air Quality Excerpts from the Vaca Valley Industrial Park, Phase II, Final EIR, May 1976
 - A. Mitigation Measures Available to Reduce Impacts in Developing the Vaca Valley Industrial Park

I ANALYSIS OF LAND USE OPTIONS FOR ELMIRA ROAD INDUSTRIAL CORRIDOR

Vacaville Planning Department 22 December 1977

TABLE OF CONTENTS

Analysis of Land Use Options for Elmira Road Industrial Corridor

- 1. Introduction
- 2. Background
- 3. General Plan Map 1974 Amendments
- 4. General Plan Considerations
 - A. General Plan Remains as Currently Designated
 - B. Amend General Plan
 - a. Alternative I
 - b. Alternative II
- 5. Zoning Consideration
- 6. Staff Recommendations
 - A. Mitigation of Potential Land Use Impacts
 - B. Mitigation of Existing Land Use Impacts
- 7. Appendix
 - I. Land Use Chronology of the Elmira Road Industrial Corridor
 - II. Urban Land Institute Technical Bulletin 44-1962/Survey of Industrial Use Acreage Requirements
 - III. Survey at Existing Local Uses Potentially Locating in the Maris Industrial Subdivision
 - IV. Excerpts from Zoning Ordinance No. 458
 - A. Section 6.2, a Light Manufacturing (M-L), Use Listings
 - B. Section 5.2, d Commercial Service (C-S), Use Listings

I. INTRODUCTION

This analysis is structured to first review General Plan options and secondarily, the zoning considerations, as they relate to the General Plan options. The final section of the report (two parts) deals with the staff recommendations for mitigation of potential (Maris) and existing (Coachman/Festival) land use conflicts. The appendix contains additional detailed information which is a part of the base data of this study.

2. BACKGROUND

The purpose of this report is to illustrate the land use options that the City of Vacaville has for the southeast Elmira Road Industrial Strip generally, and for the Maris property specifically. There are open questions as to conflicts in existing land uses and potential conflicts which need to be resolved if the Maris Subdivision is to be approved. This land use decision is clouded by previous City zoning actions and land use projections.

a. INDUSTRIAL RESERVES

The northeast sector appears to have been committed to industrial uses in 1963, when American Home Foods built a food processing plant adjacent to I-505. The General Plan revision of 1974 increased the planned industrial areas of the northeast for a total exceeding \pm 3200 acres. At the same time, in the southeast area, industrial lands were decreased by 70 \pm acres and residential lands were increased.

By comparison, the northeast industrial area is greater in magnitude by a factor of ten, than similar reserves inthe southeast sector of the planning area. The southeast areas have been evolving as residential areas since the annexation of Leisure Town in 1961. This trend accelerated with the development of Fairmont Subdivision in 1964. For the remainer of 1960's this residential trend continued.

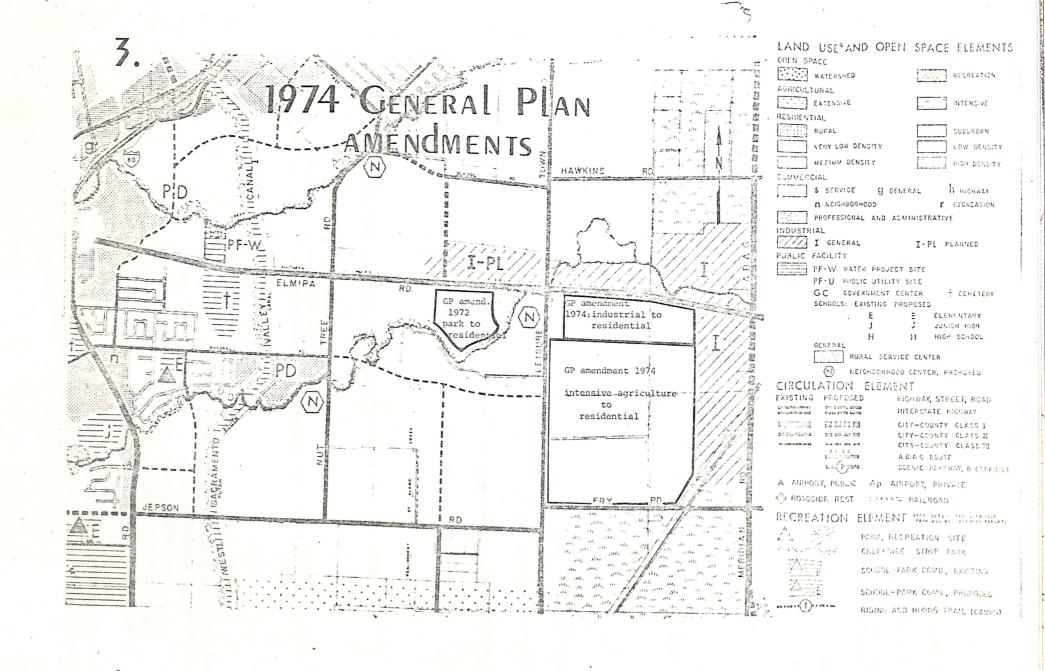
b. SITING CONCERNS

Land use decisions are rarely "clean cut" or distinct. Current principles of land use planning recommend an integration of land uses rather than a strict use segregation. There exist a multitude of arguments supporting this position, but there is a necessary qualifier - possible conflicts must be minimized to allow the benefits mixed uses to surface.

c. DEVELOPMENT STANDARDS

Development standards can be very effective tools for minimizing these conflicts. In the past the City has not had truly definitive industrial development standards such as those recently incorporated into the Industrial Park Ordinance. Had industrial users along Elmira Road been required to develop according to the existing City Standards, many of the current conflicts would not exist. Similarity, if present residential development standards had been required for Lewis Homes (eg. noise mitigation, walls, landscaping, berms, etc.) the conflicts would have been considerably minimized. However, such standards were not enforced.

Regardless of any new land use decisions for the Maris property, the City could take action to minimize the existing conflicts. This subject is dealt with in more detail under section 6, staff recommendations, Mitigation of Existing Uses.



manufaction of the contraction o

4. GENERAL PLAN CONSIDERATIONS

The General Plan Chronology has been reviewed and an analysis of the Land Use options in the Elmira Road corridor accomplished. The General Plan can either be maintained as is currently stated, or the General Plan can be revised. (The 1978 revision is currently under way and the Elmira industrial corridor will be one of the major areas of concern.)

A. GENERAL PLAN REMAINS AS CURRENTLY DESIGNATED

The General Plan for the Elmira area stands as is, which supports the approval of the Maris Tentative Map-with applied conditions.

Justification:

The Maris proposal is in full accord with the General Plan. The Developer has presented a project which conforms to the minimum development requirements of the Zoning Ordinance. The project was reviewed and approved by the Planning Commission (6 - 1) on October 18, 1977.

General Plan Findings of Conformance (applicable exerpts)

1970 GENERAL PLAN:

Section 5, Industrial (page 14)

"The City of Vacaville wants and needs industrial development."

1974 GENERAL PLAN REVISION:

Section 5, Industrial Land Use

"b. Policies

- 1. To attract a diversity of industrial land uses to locate in the planning area in a manner mutually beneficial to industry and the City of Vacaville.
- 4. Light industrial and industrial parks should be encouraged as being in the best long term interest of the City.
- 8. Nonindustrial and incompatible uses such as commercial and residential uses shall be excluded from industrial areas.

- 11. Construction of architecturally significant buildings and the landscaping of building sites and parking areas shall be encouraged in industrial areas.
- 12. Development of well-designed industrial park areas shall be encouraged.
- 15. Loading, storage and other unsightly areas shall be screened from residential and commercial areas.
- 16. Sign controls shall be enacted and enforced in industrial areas.
- 17. Adequate off-street parking facilities shall be provided for employees and visitors as shall space for maneuvering, loading, docking and storage.
- 18. Zoning, subdivision and other ordinance standards shall prevail as related to uses, parking, site and street improvements and landscaping."

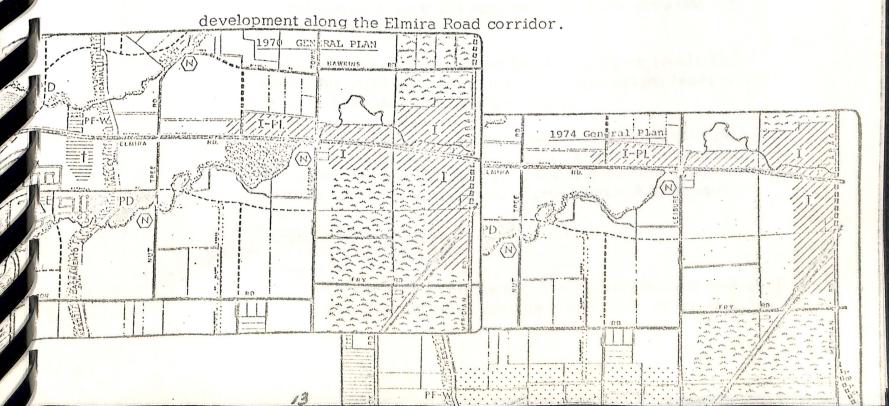
1970 and 1974 General Plan

"Description of Elements

- B. Land Use and Open Space
 - 6. Industrial Classifications

This classification is applied to areas in which necessary transportation and utility facilities are available, which have broad exposure to major trafficways, and which are in close proximity to residential or public use sites. They are best suited industrial developments which include attractive structures set back from property lines on landscaped sites, with all operations conducted within the structures, and with on-site parking and limited advertising."

1970 and 1974 General Plan Map - These amendments were approved by both City Councils as expressing community desires for future



B. AMEND GENERAL PLAN

This possibility would necessitate continuation of the tentative map and environmental assessment until after the City-wide General Plan study (now underway) is completed.

<u>Justification</u>: There would appear to be excessive amounts of industrially planned and zoned land in Vacaville. In the northeast section of Vacaville alone, there are over 3,000 acres of industrial land in the General Plan, over 1,000 acres of which already zoned industrially.

The General Plan of 1970 and 1974 revision did not adequately consider the impacts of industrial uses on the specific properties in the Elmira area. It reflected general concerns but not the specific sites.

1970 General Plan:

"Section 5, Industrial (pages 14 & 15)

- a. ...located with consideration of their effect on adjacent uses.
 - ...While residential development may be depreciated by an industrial use next door, properly located industrial areas must be protected from detrimental uses.
 - ... Industry must be well serviced by roads relatively free of other non-industrial traffic.
 - ...Subdivisions must not encroach into areas set aside for industrial development.
 - ...Industrial areas should not front directly on residential areas, but shall be separated by back-up design, landscaping or other buffering or transitional uses.
 - ...Industry should be concentrated around existing or planned freeway interchanges, railroad spurs and similar transportation facilities. Strip industrial, sprawl development or indiscriminate freeway siting for advertising effect shall be discouraged."

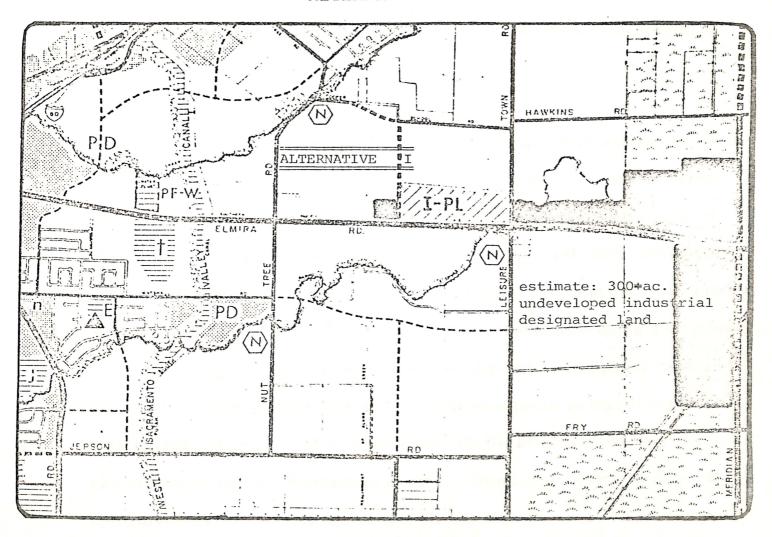
1974 General Plan Revision:

- "Section 5, Industrial Land Use
- b. Policies
 - 2. In order that no single group of industrial land uses shall prosper to the disadvantage of any other group or industry,

- industrial uses shall be located only after careful consideration and study of their effect on adjacent uses has been completed.
- 3. In order to preserve the existing environmental quality, which is a prime asset to the Community, all industrial uses should be subject to performance standards that will maintain compatibility with adjacent uses.
- 5. The City, in concert with the County of Solano, the Air Pollution Control Board and any other interested local or regional jurisdictions shall, by promoting research, data collection, studies, policies, and appropriate implementing regulations exert maximum effort to reduce air, water, noise, chemical or similar types of pollution.
- 6. Industrial areas should not front directly on residential areas, but shall be separated by back-up design, landscaping or other buffering or transitional uses.
- 7. The City shall work toward the use of performance standards based on changing technology to replace the present method of permissive and prohibited uses based on nuisance factors.

Design

- 9. Industry shall be nucleated on the recommended sites rather than stripped along the railroad tracks and major highways. Strip industrial, sprawl development of indiscriminate freeway siting for advertising effect shall be discouraged.
- 10. Industrial areas (especially freight terminals) shall be located close to freeway and expressway interchanges to minimize interruption of traffic flow on streets, freeways and interchanges.
- 14. Industrial and residential areas shall not front directly upon each other, but shall be separated by back-up treatment, landscaping, or by other appropriate buffering."



Estimate 300+ acres undeveloped industrially designated land.

I. Maris Property remains I-PL on the General Plan but the remaining undeveloped I and I-PL areas along Elmira Road Industrial Corridor would be changed to alternative land use designations.

Possible Alternatives:

- A. <u>Commercial Service-Maris Tentative Map</u> (with conditions) could be approved but with CS uses only. The result being a loss of prime agricultural land. A C-S designation would supplement the short supply of Commercial Service areas in Vacaville. It would be unrealistic to convert all 300+ industrially planned acres along Elmira Road to C-S land uses. It appears however that 40-80 acres of C-S would be reasonable to meet current City needs.
- B. Residential-The Maris Tentative Map (with conditions) could be approved. Selection of this alternative would also result in loss of prime agricultural soil, but would be compatible with the extensive existing and planned residential development in the area. Because of Growth Management, these areas would probably not develop in less than 10 years.
- approved. This alternative would result in preservation of prime agricultural soil on lands presently designated for industrial use. This is a reasonable response should the City of Vacaville desire to reinforce its stated goal of preservation of prime agricultural lands. This land use designation would be very compatible with existing and proposed uses in this area, but may not be practical from an economic standpoint.

GENERAL PLAN 1974 (exerpt page 5)

"1. AGRICULTURE AND OPEN SPACE LAND USE

A. GOAL
A SIGNIFICANT AGRICULTURAL INDUSTRY SHALL BE
PRESERVED TO PROVIDE A BALANCED ECONOMY FOR THE CITY.

B. POLICIES

1. Maximum effort shall be expended to preserve prime or potentially prime agricultural areas.

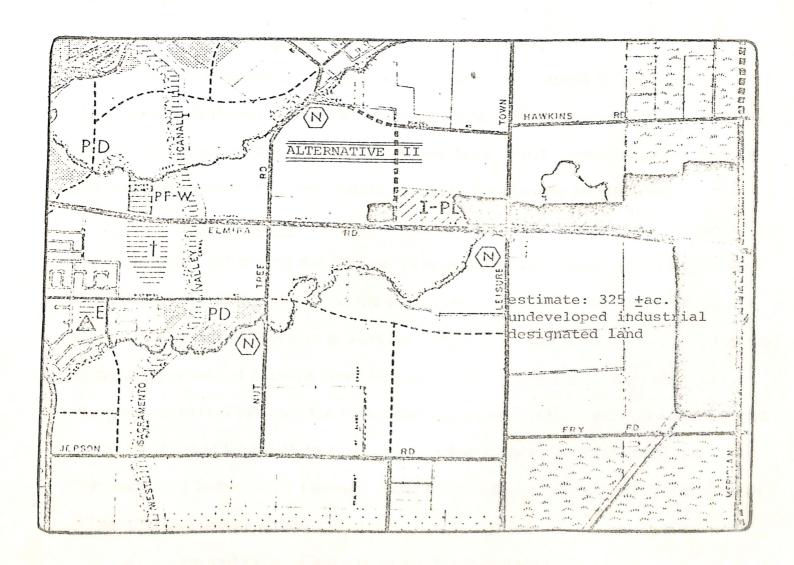
Agricultural Classifications (page 29)

This classification is applied to valley and level plain lands having in most cases Class I and II soils ratings for agricultural production purposes. Most of these land areas are presently in intensive agricultural use, and all have the potential for such use. A substantial portion is in Agricultural Preserves.

It is imperative that these prime lands be protected from the intrusion of incompatible uses in order that the Economic resource and open character they represent may be retained in the best interest of the land owners and general public."

ALTERNATIVE II

b.



II. All undeveloped Industrial and Planned Industrial designated lands along the Elmira Road Corridor (including Maris) could be changed to alternative land use designations.

POSSIBLE ALTERNATIVES:

- A. Commercial Service-The Maris Tentative Map (with conditions) could be approved, but with C-S uses (see Appendix IV). The current low supply of Commercial Service land would be supplemented. There is an immediate need for a "live" proposal which would satisfy the City's need of CS land. The remaining I and I-PL land could reasonably be changed to a residential or agricultural designation.
 - B. Residential Denial of Maris Tentative Map

The Maris property, if developed residentially, would be impacted by Festival Mobile Homes as their adjacent neighbor. Extensive mitigation measures would be necessary (i.e., berms, wall, set-back, etc.). Because of the Growth Management System, this area would probably not develop for 10 years.

- Maris property (25 acres) for General Commercial uses. There is not presently, nor in the foreseeable future, an adequate residential base in this area for a commercial center of this size to survive. Possibly a small portion area (5-8 acres) at the intersection of Leisure Town and Elmira Road would be reasonable, but the residual parcel between the Fleetwood Industries on the west and a commercial center on the east would be incompatible for Residential or Agricultural land uses. The remaining industrially planned areas could still go agricultural or residential if this alternative was chosen.
 - D. Agricultural Denial of Maris Tentative Map

 This alternative would result in a minor preservation of Prime agricultural

lands. (See Alternative I, section C agriculture above)

5. ZONING CONSIDERATIONS

The land use decision which will result from the above discussion of alternatives will deterimine the appropriate zoning for the Maris property. The zoning options are to maintain the existing zoning or reclassify to either commercial service-conditional, general commercial, agricultural-10 acre minimum, or residential. Any action to rezone the parcel would require a General Plan amendment.

a. Approve the Maris Tentative Map (with conditions) and maintain the M-L zone.

Justification:

- This is consistent with the current General Plan, with the current Zoning Ordinance and with the development standards of the City.
 The conditions of approval do mitigate the subdivision impact on adjacent land uses.
- 2. 1974 Report by Ernst & Ernst (National Association of Industrial Parks) limited research tends to show well planned industrial parks tend to appreciate land values of surrounding residential property, the rate is at least comparable to other residential areas in the subject cities. The Maris Industrial Park, if developed in accordance with recommended conditions, will be a high quality manufacturing, research and service park. If the formal mechanisms of conditions on the tentative map and mandatory design review of each use are enforced, it will help to assure that the Maris Subdivision will be a high quality development, not more of Coachman/Festival or Depot Street/Mason Street quality of development.

- 3. In the above mentioned study, it was also pointed out that over 50% of the business in parks of this size are relocations of existing local business. This process will help to "clean-up" other areas of Vacaville. These areas are either obsolete or too small for expansion.
- The integration of work and home makes for less travel and consequently less air pollution. Vacaville is a commuting suburb, but it is likely that some day soon residents will not be able to afford the luxury of the commute and will require an employment source close to home. Local diversification of the economic base may satisfy that need.
- b. Approve the Maris Tentative Map, with conditions, but change the M-L zone to Commercial Service conditional.

Justification:

- 1. There exists a shortage of developable commercial service areas in Vacaville. This area would be well suited for CS uses. M-L and C-S share many of the same uses, but there is more of a manufacturing emphasis in the M-L zone. However, some commercial enterprises of a C-S conditional zone may generate more traffic than an M-L zone.
- c. Deny the Maris Tentative Map, Change the M-L zone to General Commercial Justification:
 - 1. Not justified. The parcel is too large to support retail commercial enterprises. (See General Plan alternatives II, section C, General Commercial)

d. Deny the Maris Tentative Map, change the M-L zone to A-10.

Justification:

- Preservation of Prime Agricultural land. (See General Plan Alternative I, section C agriculture)
- e. Deny the Maris Tentative Map, change the M-L zone to Residential.

Justification:

- 1. (See General Plan Alternative II, section B, Residential)
- 6. STAFF RECOMMENDATIONS:
- A. Mitigation of Potential Land Use Impacts

 Once the City has mitigated the land use conflicts with existing industrial development,
 the Staff would recommend approving the Maris Tentative Map with the following conditions.

 If these conditions and standards are attained, the proposal should be a high quality
 development with little land use conflict potential. The use and the design standards will
 be in conformance with the General Plan and will have adequately mitigated the identified
 environmental impacts.

6, STAFF RECOMMENDATIONS:

A. Mitigation of Potential Land Use Impacts-Continued

CONDITIONS OF APPROVAL - MARIS INDUSTRIAL PARK

- A. The developer shall comply with all applicable State, County, and/or City laws, regulations, and/or ordinances.
- B. The developer shall comply all requirements of the Director of Public Works as defined in Public Works Memo No. 182, dated August 12, 1977, and Public Works Memo No. 223, dated October 13, 1977, and any other development requirements as may be stipulated by the Director of Public Works.
- C. The developer shall comply with the requirements of the Fire Chief to provide for an adequate fire protection system within the development.
- D. The developer shall provide a detailed tree grid of the subject property, prepared by licensed Civil Engineer or a licensed Land Surveyor. The developer shall make every attempt to preserve as many trees as is possible on site. Should it be necessary to remove any Heritage Trees, the developer shall mitigate such removal by providing replacement at a ratio of three (3) trees per each Heritage Tree removed. Said replacement trees shall be of specimen size (3" to 4" trunk caliper minimum 24" box specimen). The City shall reserve the right to accept or reject any replacement materials.
- E. The developer shall provide full perimeter fencing and screen planting around the subdivision as specified:
 - 1. On the north and south property lines, adjoining the Brynes Canal and Southern Pacific Railroad Line, the developer shall provide a solid masonry fence minimum eight (8) feet above the grade of Elmira Road, a minimum fifteen (15) foot setback (Section 6.4d, minimum 10 feet required). Dense shrub and tree planting shall be installed to screen the subject property from public views.
 - 2. On the west property line, along the southerly 140 foot portion adjacent the rear of lots #16 and 17. The developer shall provide a solid masonry screen fence a minimum six (6) feet in height above the grade of Elmira Road. On remaining portions of the west property line a minimum six (6) foot screen fence shall be constructed. Dense shrub and tree plantings shall be installed to screen the subject property from public views.
 - 3. On the east property line, the developer shall provide a masonry screen fence six (6) feet minimum height above the grade of Leisure Town Road and a two (2) foot berm and a minimum twenty-five foot wide planter area (minimum side yard is 25 feet) incorporating mounding, tree and shrub planting, and a combination of turf and ground cover.
 - 4. All landscaped areas shall be provided with underground irrigation systems and permanently maintained through an owners association.
 - 5. All fencing and landscaping plans shall be reviewed and approved by the Director of Planning prior to the applicants filing for a Final Subdivision Map.

CONDITIONS OF APPROVAL - MARIS INDUSTRIAL PARK CONTINUED

- F. The developer shall prepare in final form a set of convenents, conditions and restrictions applicable to the entire 25± acre area. Said C.C.R.s shall be submitted for review and comment by the City. These C.C.R.s will become a part of the design review of the proposed developments. These C.C.R.s shall set forth a high standard of architecture design and materials.
- G. Accumulation of parcels for development shall not exceed 2 acres.
- H. All facilities constructed and uses reviewed shall be subject to review and certification by the Yolo-Solano Air Pollution Control District.
- I. All uses shall be approved by the Planning Commission, with appeals to the City Council if necessary.
- J. In case of exceptional circumstance, the Planning Director shall be authorized to defer completion of on-site improvements past the date of occupancy of the proposed facility provided that the developer enter into a Deferred Improvement Agreement with the City of Vacaville and provided that the developer post with the City of Vacaville adequate to insure completion of such deferred improvements.

B. MITIGATION OF EXISTING LAND USE IMPACTS

The City of Vacaville passed the 1970 General Plan with the reasonable desire for industrial uses in the Elmira area. Subsequent to that approval the City approved the Kit (Coachman) and Fleetwood (Festival) industrial development.

Below is a summary of the existing situation which may bear consideration.

- 1. 1970-Conditions of Annexation for Kit Manufacturing, Condition 12, "some screening of the site will be required, this screening will-generally take the form of fencing and shrubery."
- 2. November 1970-Kit requested 2 variances:
 - a. Variance for a mobile home to be used as an office (located in parking area) Approved: unanimously.
 - b. Variance to delete the 10 foot landscape strip requirement along Elmira Road, Denied: unanimously.
- 3. The City deferred the installation of improvements until adjacent properties were developed or five years, which ever came first.
- 4. Five year time period for deferred improvements expired in 1975.

City requested action by Coachman (new owners of Kit) to complete improvements as previously stipulated.

- 5. Feburary 26, 1976: City receives a performance bond of \$11,750 for improvement from Coachman and requested that the work be completed within 90 days (not later than May 26, 1976).
- 6. September 1976: City noticed Coachman that the performance is mandatory.
- 7. December 1977: Insullation of improvements has not commenced for Coachman. Landscaping is minimal and unmaintained for Festival.

Zoning Enforcement proceedings should be commenced to require immediate installation of all improvements as previously agreed to. Landscaping should be installed to screen outdoor work and storage areas. Pursuant to the Zoning Ordinance and other applicable City regulations, enforcement could correct the present situation.

The following measures are suggested as examples:

- 1. Ordinance 458, Section 6.5c, required conditions:
 - C. NOISE In an M-L district, no use shall be permitted which creates a sound level beyond the boundaries of the site in excess of 45 dedecibels. In the M-H district no use shall be permitted which creates a sound level beyond the boundaries of the M-H district in excess of 45 decibels. Sound level shall be measured with an instrument which is in accordance with the American Standard for Sound Level Meters, Z 24.3, and response curve "A" given in this Standard shall be used.

Enforcement of this requirement in addition to regulations concerning "public

MITIGATION OF EXISTING LAND USES CONTINUED

nuisances" would abate to the usage of any loud speaker systems and other devices which omit obnoxious noises which exceed City noise standards.

2. Provision of additional developed parking areas by current industrial uses impacts to the site itself, thereby alleviating conflicts with nearby residences.

Recommendation:

Should the City Council determine that Zoning Enforcement proceedings are appropriate and effective toward bringing about compliance with existing City Standards and regulations, Staff could be directed to prepare a detailed report on this matter for Council consideration.

Land Use Chronology of the Elmira Road Industrial Corridor

- 1959 Water system addition (Lewis Homes) 57 acres, December 15, 1959.
- 1960 City built sewer plant at Elmira funded by 1959 Sewer Bond. No urban development south of freeway.
- 1961 Leisure Town built in County, annexed to City May, 1961.
- 1963 American Home Foods constructed processing plant in NE Vacaville; industrial commitment in this area.
- 1964 Fairmont built residential development south of I-80 & Elmira Road.
- 1965-70 An increased urbanization of the southern side of Vacaville.
- 1966 Easterly Sewer Treatment Plant at Elmira expanded.
- 1969-70 General Plan Elmira Road strip area designated as Industrial, consistent with stated GP goals and policies.
- 1970 Elmira Road Addition (Kit & Maris Property) (109 acres) October, 1970.
 - Kit rezoning, November 1970 A-20 to M-L.
- 1971 Kit Manufacturing construction complete operation begins October, 1971.
- 1972 Lewis Homes Property rezoned A-20 to R-1-6000.
 - General Plan amended Park to residential (Lewis Homes) June 27, 1972.
 - Tentative Map Lewis Homes, June 20, 1972. "Concept" plan approved by Planning Commission.
 - City sold property to Ralph Lewis Homes, Inc. August 16, 1972.
 - Lewis Homes Final Map August 22, 1972 (50 d.u.'s)
 - Fleetwood (Festival/Maris) rezoning A-20 to M-L September 26, 1972.
 - Elmira Road #4 Addition (329.5 acres) September 12, 1972.
 - Elmira/Nut Tree Addition (107 acres) November 28, 1972
 - Arbor Oaks Rezone & Tentative Map December 1973
- 1973 Southeast Sewer Assessment District formed.
 - Fleetwood (Festival) construction completed operations begun.
 - Leisure Town/Jepson (347.11 acres) March 27, 1973 Annexation.
 - Lewis Homes Unit No. I completed (50 d.u.'s).

- 1974 General Plan amendment reduced industrial land in southeast Elmira area and added industrial land in the NE area (3,000 acres planned industrial) Expand Crocker-I-505/Coachmen-Midway Road.
 - Glendale proposed large industrial/residential/commercial development between Leisure Town Road and Elmira never developed.
- 1975 Lewis Homes No. 3 finaled and completed.
- 1976 Entire Lewis Homes Tract completed October 24, 1976.
 Arbor Oaks construction commenced.
- 1977 Increased residential commitments proposals for areas south of Elmira East of Nut Tree Road.

ULI Technical Bulletin 44-1962

Industrial Districts

Survey of Use Acreage Requirements

·			
	Developed	and market actions for a first	
Industrial Complexes	Acreage	-	
The doct and the second	norcage	00010	
Ajax Industrial Estates			
(41 acres - 21 firms)	1.0	electroplating	
(12 00000 22 222	1.0	food products	
	.8	foam rubber	
	.9	hydraulic jacks	
	1.0	greeting cards	
	1.0	water pumps	
	1.0	auto trim	
	1.1	plastic	
Norfolk Redevelopment Project #1			
(27.5 acres - 16 firms)	.6	survey office	
	.7	confectioners	
	.7	electric motors, sales	
		and service	
	. 7	wholesale tobacco	
	. 7	dairy products	
	1.1	wholesale periodicals	
	1.1	electrical supplies	
Bohannon Industrial Park, Menlo Park			
(72 acres - 24 firms)	. 7	greeting cards	
	1.0	commercial shelving	
	1.1	material handling equipment	
Waltham Industrial Center		· But Introduction	
(175 acres - 13 firms)	1.0	office and sales warehouse	
	1.0	office and plant	
Crocker Industrial Park, Brisbane			
(250 acres possible [45 acres	7.0		
leased as of 1962] - 11 firms)	1.0	parts for jeeps	
	1.0	distribution warehouse	
Don Mills			
(391 acres - 74 firms)	1.1	statistical insurance	
(391 acres - 74 films)	7.47	service	
	1.0	air filters sales and	
	1.0	service	
	1.1	tire retread and sales	
	1.0	consultant professional	
	T. O.	engineers and town planners	
	1.0	surveying and manufactur-	
	4.0	ing of electronic equipment	
	1.1	billboard leasing	
	ada V ada	and the second s	

	a man sakee y	Developed Acreage	Users
	rre a lar de La contact	1.0 .6 1.1	electronic sales gas station toy wholesalers and importers
	ne da	1.0	soap manufacturers
Tampa, Florida			
(400 acres - 10 fir	rms)	1.0	commercial dishwashers
Pointe Claire			extra service of the service of the
(500 acres - 36 fin	rms)	.9	lubricant
		.9	wire ropes
		.9	meat essence
		.9	furniture
		.9	concrete grouting
		.1	bank
		.6	trucking
		.2	service station
		.9	electronic equipment
		.9	insulation .
		.9	instruments
		. 5	electric switch gear
		.9	floor polishers
		. 9	building products
		.9	drafting supplies
Stanford Industrial			
(700 acres - 42 fir	cms)	1.1	power supply devices
		1.1	printing
		1.0	equipment center
		.5	fire station site
		1.2	research in molecular biology
		1.0	space research

SURVEY OF EXISTING LOCAL USES POTENTIALLY LOCATING IN THE MARIS INDUSTRIAL SUBDIVISION

Possible existing local firms which could go into Maris Industrial Park based on use characteristics, zoning and size requirements.

Distribution - truck traffic - breaking of shipments for local use

- building suppliers
- beverages
- petroleum

Services

- pipeline surveying and cleaning
- construction offices and storage yards

Manufacturing

- aero space and medical equipment manufacturing
- printing
- electroplating
- metal fabrication and welding

A SECTION 6.2 PERMITTED USES

a. M-L LIGHT INDUSTRIAL DISTRICT (continued)

Manufacture and assembly of electrical supplies such as coils, condensers, crystal holders, insulation, lamps, switches and wire and cable assembly, provided no noxious or offensive fumes or odors are produced;

Manufacture of cutlery, hardware and hand tools; die and pattern making; metal stamping and extrusion of small products such as costume jewelry, pins and needles, razor blades, bottle caps, buttons and kitchen utensils;

Bottling works; bus depots and transit stations; cold storage plants; dairy products plants; freight forwarding terminals; furniture manufacture; ice manufacture; laboratories; lumber yards not including planing mills or saw mills; mattress manufacture; motion picture production; printing, lithographing and engraving; public utility and public service buildings and structures, including communications equipment buildings, pumping stations, drainage ways and storage tanks found by City Planning Commission to be necessary for the public health, safety or welfare; textile, knitting and hosiery mills; transit yards; trucking terminals; warehouses except for the storage of fuel or flammable liquids;

Blacksmith shops; machine shops not involving the use of drop hammers, automatic screw machines or punch presses with a rated capacity of over 20 tons; manufacturing, canning and packing of foods and food products including fruits and vegetables but not including fish and meat products, pickles, sauerkraut, vinegar or yeast or refining or rendering of fats or oils; metal finishing and plating; railroad stations; service yards; small boat building not including ship building; welding shops, woodworking shops and sash and door manufacturing, including only incidental mill work which shall be conducted within a completely enclosed structure; provided that the uses prescribed in this paragraph shall be located not closer than 1,000 feet to an R or A district;

Feed stores (7/3/62); Plumbing shops (8/21/62);

and other uses which are added to this list by the City Planning Obmmission in accord with the procedure prescribed in Section 10.1.

SECTION 6.2 PERMITTED USES

- a. M-L LIGHT INDUSTRIAL DISTRICT (continued)
- 2. Banks, restaurants including drive-in restaurants, and service stations (except in the Core Area).
- Offices, retail stores and watchmen's living quarters incidental to and on the same site with an industrial use.
- 4. Parking lots improved in conformity with the standards prescribed in Section 7.3.
- 5. Accessory structures and uses located on the same site as a permitted use.
- b. M-H HEAVY INDUSTRIAL DISTRICT
- 1. All uses permitted in the M-l district.
- 2. Heavy industrial and related uses, including:

Aircraft and aircraft accessories and parts manufacture Automobile, truck and trailer accessories and parts manufacture Automobile, truck and trailer assembly

Bag cleaning

Battery manufacture

Boiler works

Box factories and cooperage

Breweries, distilleries and wineries

Building materials manufacture and assembly including composition wallboards, partitions, panels and prefabricated structure Business machines manufacture including accounting machines,

calculators, card-counting equipment and typewriters

Can and metal container manufacture

Candle manufacture not including rendering

Carpet and rug manufacture

Cement products manufacture including concrete mixing and batching

Chemical products manufacture provided no hazard of fire or explosion is created, including adhesives, bleaching products, bluing, calcimine, dye-stuffs (except aniline dyes), essential oils, soda and soda compounds and vegetable gelatin, glue and size

B. SECTION 5.2 PERMITTED USES (continued)

d. C-S COMMERCIAL SERVICE DISTRICT

1. Commercial service establishments, including:

Automobile repairing, overhauling, rebuilding and painting Automobile sales and service Automobile supply stores (9-77) Bakeries Barber shops and beauty shops (2-4-64)"Blind-made" products (3-21-61) Boat sales and service Book binding Bottling works Bowling alleys Cabinet shops Carpenters' shops Carpet and rug cleaning and dyeing ·Catering shops Christmas tree sales lots Cleaning and dyeing Cold storage plants Columbariums and crematoriums Confectionery manufacturing and sales (9-17-68) Dairy products plants Diaper supply services Electrical repair shops Exterminators Feed and fuel stores Food lockers Food stores, delicatessen stores and supermarkets (11-5-63) Freight forwarding terminals General merchandising stores, not including automotive repair services (7-21-64) Glass shops Heating and ventilating shops Household and office equipment and machinery repair shops Ice storage houses Laundries Linen supply services Lumber yards (6-3-64)

Machinery sales and rentals Mattress repair shops Motorcycle sales and service Nurseries and garden supply stores Packing and crating Parcel delivery services Photographic developing and printing Plumbing shops Printing, lithographing and engraving Railroad stations Refrigeration equipment Repair garages Restaurants Safe and vault repairing Sheet metal shops Storage yards for commercial vehicles Taxidermists (12-20-66) Tire sales, retreading and recapping Tool or cutlery sharpening or grinding Trailer sales and service Used car sales Veterinarians' offices and small animal hospitals, including shortterm boarding of animals and incidental care such as bathing and trimming, providing that all operations are conducted entirely within a completely enclosed building which complies with specifications of soundproof construction which shall be prescribed by the Building Inspector Warehouses except for the storage of fuel or flammable liquids

Rev. 4-71

Wholesale establishments.

SECTION 5.2 PERMITTED USES (continued)

- d. C-S COMMERCIAL SERVICE DISTRICT (continued)
- 2. Commercial service establishments involving creation of noise, odor, dust, heavy traffic, unsightliness or other nuisances and hazards, when located not less than 1,000 feet from an R district, including:

Blacksmith shops

Building materials yards other than gravel, rock or cement yards

Contractors' equipment rental yards

Contractors' storage yards

Kennels

Live storage, killing or dressing of poultry or rabbits for retail

sale on the premises

Lumber yards not including planing mills or saw mills

Small animal boarding

Stone and monument yards

Transit yards

Trucking terminals

Veterinarians' offices and small animal hospitals

Welding shops

and other uses which are added to this list by the City Planning Commission in accord with the procedure prescribed in Section 10.1.

- 3. Parking lots improved in conformity with the standards prescribed in Section 7.3.
- 4. Public utility and public service buildings, yards and structures, including communications equipment buildings, pumping stations, drainage ways and storage tanks found by the City Planning Commission to be necessary for the public health, safety or welfare.

Rev. 7/67

e. P-A PROFESSIONAL AND ADMINISTRATIVE DISTRICT

Architects
Attorneys at law
Chiropodists
Chiropractors
Dentists
Engineers
Landscape architects
Opticians

Oculists
Optometrists
Osteopaths
Physicians
Psychiatrists
Psychologists
Surgeons

Rev. 10/67

SECTION 5.3 CONDITIONAL USES (continued)

c. C-S COMMERCIAL SERVICE DISTRICT

- 1. Public buildings and grounds.
- 2. Accessory structures and uses located on the same site as a conditional use.
- 3. Dried and dehydrated fruits and vegetables excluding onions, garlic and other such malodorous products.
- 4. Vacant
- 5. Drive-In businesses (except service stations and car washes in the Core Area).
- 6. Mobilehome Parks pursuant to the requirements of Article 8A.
- d. P-A PROFESSIONAL AND ADMINISTRATIVE DISTRICT (Deleted see Article 5A)

II

DRAINAGE AND WASTEWATER ANALYSIS
FOR MARIS INDUSTRIAL PARK

Vacaville Public Works Department
December 22, 1977

DEC 20 1977

CITY OF VACAVILLE PLANNING DEPT.

MEMO #267

December 20, 1977

TO:

Planning Department

FROM:

Department of Public Works

SUBJECT:

Maris Industrial Park Drainage & Wastewater

The subject development is located at the north west corner of Elmira Road and Leisure Town Road and drains into the old Alamo Creek channel. There are approximately 160 acres west of Leisure Town Road including the Maris property which drains into the old channel.

We have considered three alternatives in calculating the storm water discharge. All three are based on a 10 year frequency storm with all the area being developed except for the Maris property.

1. Area with Maris property undeveloped

Maris 13.2 cfs
Remainder 84.0 cfs
Total 97.2 cfs

2. Area with Maris property developed residential

 Maris
 26.4 cfs

 Remainder
 84.0 cfs

 Total
 110.4 cfs

3. Area with Maris property developed dense industrial

Maris 47.4 cfs
Remainder 84.0 cfs
Total 131.4 cfs

With the property developed for industrial, an increase of 34.2 cfs or 35 per cent would occur in the total discharge to the channel.

In a hundred year frequency storm, the total developed discharge would be approximately 210 cfs. This is not a significant amount of water when compared to the new Alamo Channel which will carry 4,500 cfs in a hundred year frequency storm. This water used to go into the old channel prior to construction of the new Alamo Creek.

On November 18, 1977, the Assistant City Engineer and John Swenson from Solano County Public Works Department walked the old creek channel from Leisure Town Road east to where it crosses Elmira Road near the town of Elmira. Three restrictions were found in the channel. Two of these were crossings where farmers have filled in the creek to provide a crossing for farm equipment. Culverts were installed at the crossings but are inadequate to handle the flow. Mr. Swenson said that these crossings were illegally installed without County permits.

The third restriction is the railroad crossing near the town of Elmira. When the new channel was constructed, Southern Pacific replaced their trestle crossing with a 30 inch culvert.

All three of these restriction would be subject to flooding in a major storm. However, the flooding would be local and would only affect the adjacent agricultural lands.

With the above mentioned restrictions removed or corrected, the existing would be more then adequate to handle the projected storm drainage.

As there are no uses currently specifically proposed, it is not possible to identify any specific problems which may be anticipated with wastewater generated by this development. Each proposed use should be reviewed during the initial application state to insure that problem uses are not permitted or that mitigation measures are incorporated into the design.

BY PHOM DATE DECK S CHKD. BY DATE	Dramage Study	SHEET NOOF JOB NO
Highwa	ey of Storm Orainage Sou y 80 Vacaville. Moder Associates	theast of Interstate
Q=CIA C=.9 for Co C=.25 for U I=graph Page	unuercal Industrial Uses - (independent TC is 15 min (Pag	Page 21 leb) 223 Reb)
In - 1.7 Iso - 2.4		
Undeveloped Quo - 13,2 cfs	Oeveloped On-47.4cfs	Net Change 34.22ts

Q50 - 18,6 cfs

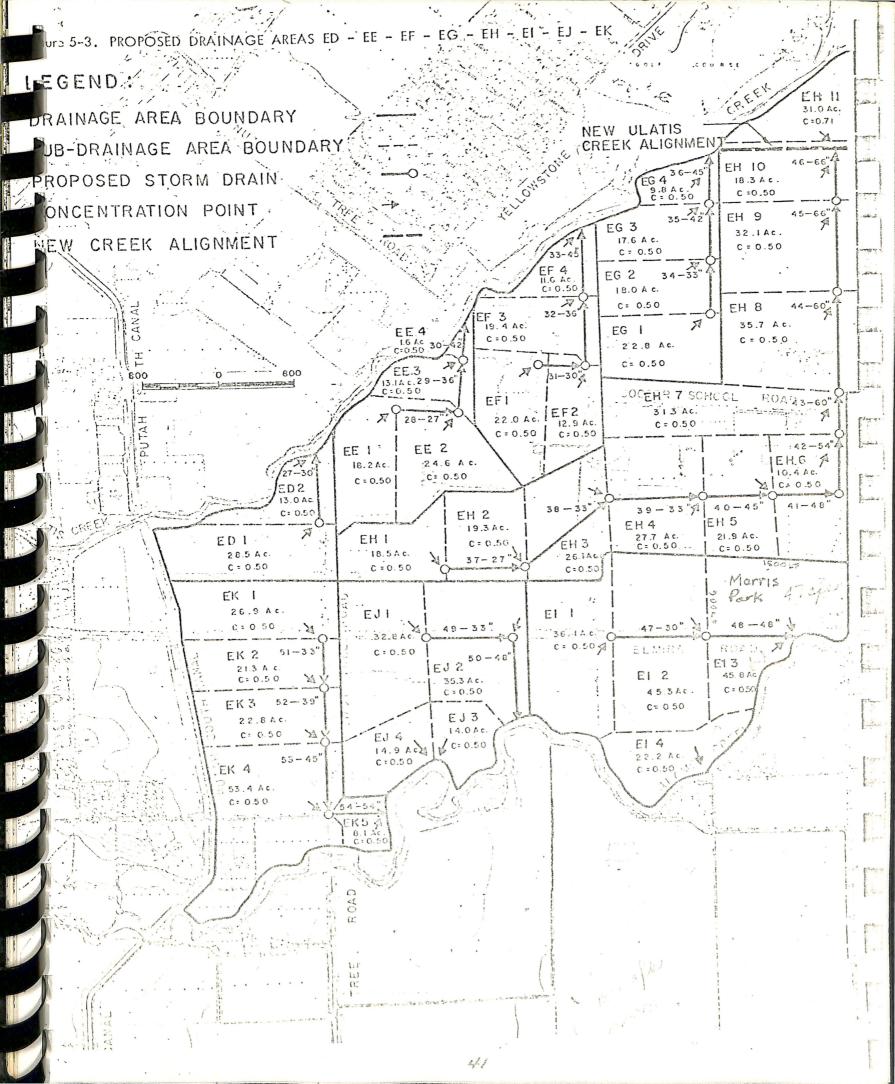
Q100 - 20,9 cts

050 - 67.0chs

Quoi - 75,3 cfs

48.4 ds

54.4 cfs



III

AIR QUALITY ANALYSIS
FOR MARIS INDUSTRIAL PARK

Vacaville Planning Department December 22, 1977

III. AIR QUALITY ANALYSIS

Existing information on air quality pertaining to local and regional conditions indicates that impacts are regionally generated on an incremental basis, specific to air basin characteristics and development trends. Review of air quality data for the 500 acre Vaca Valley Industrial Park and information provided by Yolo-Solano APCD, states that the most apparent air quality impacts will originate from increases in vehicular traffic and urban activities resulting from increased population. It was noted by the Yolo-Solano APCD, in regard to the Vaca Valley Industrial Park that,

"The industrial impact is more uncertain because of lack of information on specific industries or type of industry which may be located at the site. Existing regulations and future regulations could prohibit any increased industrial emissions when and where air quality standards are being violated. As such, very close coordination with the District is needed as to type of industry being planned."

It was also noted that industrial development in Vacaville and in general for extensive industrially designated areas of Solano County "will provide additional pollutant levels which can not be estimated at this time". It was felt, however, that:

"The exclusion of potentially 'dirty' industry at the start would be beneficial to residents and potential residents of Vacaville. In any case, the District intends to issue Authorities to Construct and Permits to Operate on a case-by-case basis as the project develops."

The City of Vacaville, in cooperation with other concerned public agencies, is pursuing the mitigation of air quality impacts of further urbanization in the local area and the Sacramento Valley Air Basin, by participating with the Sacramento Regional Area Planning Commission to formulate an Air Quality Maintenance Plan (AQMP) in conformance with the Clean Air Act.

In reviewing air quality impacts likely to be generated from the development of the Maris proposal, it is unlikely that significant air pollution will result. Individual uses locating within the project will be subject to the requirements and standards of the Yolo-Solano Air Pollution Control District and review by the

City through the Environmental Assessment and Design Review processes.

The following attachments include an assessment of present local and regional air basin conditions and projections on future air quality from the City's expected urbanization patterns. Also, the Yolo-Solano Air Pollution Control District has assessed the impacts on air quality from the development of the Vaca Valley Industrial Park and Maris Industrial Park.

ATTACHMENTS:

1) Yolo - Solano Air Pollution Control

District Correspondence dated:

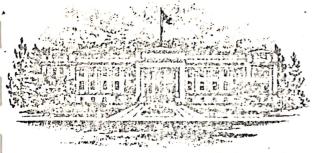
- A) 25 May 1976, VacaValley EIR
- B) 22 November 1977, Maris Industrial Subdivision
- C) 22 December 1977, Maris Industrial Subdivision
- 2) Air Quality Excerpts from the Vacaville Southwest Sector EIR, December 1977
 - A) Environmental Setting
 - B) Environmental Assessment
- 3) Air Quality Excerpts from the VacaValley Industrial Park, Phase II, Final EIR, May 1976
 - A) Mitigation measures available to reduce impacts in developing to VacaValley Industrial Park

 Yolo-Solano Air Pollution Control District Correspondence dated:

- A. 25 May 1976, VacaValley EIR
- B. 22 November 1977, Maris Industrial Subdivision
- C. 22 December 1977, Maris Industrial Subdivision

ATTACHMENTS:

- 1) Yolo Solano Air Pollution Control
- District Correspondence dated:
 - A) 25 May 1976, VacaValley EIR
 - B) 22 November 1977, Maris Industrial Subdivision
 - C) 22 December 1977, Maris Industrial Subdivision
 - 2) Air Quality Excerpts from the Vacaville Southwest Sector EIR, December 1977
 - A) Environmental Setting
 - B) Environmental Assessment
 - 3) Air Quality Excerpts from the VacaValley Industrial Park, Phase II, Final EIR, May 1976
 - A) Mitigation measures available to reduce impacts in developing to VacaValley Industrial Park



James A. Koslow

Air Pollution Control Officer
Telephone 666-8433

YOLO-SOLANO AIR POLLUTION CONTROL DISTRICT

P.O. BOX 1006 WOODLAND, CALIF. 95695 May 25, 1976

TO: Bobby L. Speegle, Associate Planner, City of Vacaville

FROM: James A. Koslow, Air Pollution Control Officer

SUBJECT: EIR 3-76, Crocker Land Company Industrial Park I

The following comments are offered in respect to the subject EIR:

- 1. It is expected that the project will have a real impact which will adversely effect the air quality in the immediate area and also the general area of Vacaville. This is in respect to factors mentioned in the report; i.e. additional vehicle travel, additional population with the attendant people activities and the industrial activities.
- 2. As noted in the report, most apparent at this time is the added vehicle traffic and people activities. The industrial impact is more uncertain because of lack of information on specific industries or type of industry which may be located at the site. Existing regulations and future regulations could prohibit any increased industrial emissions when and where air quality standards are being violated. As such, very close coordination with the District is needed as to type of industry being planned.
- 3. The District believes its own experience and the data given in the report apparently are in accord, that the vehicle emissions will be a substantial increase. However, the District is not in agreement with some of the particular statements given in the EIR insofar as:
 - a. A detailed emission calculation check has not been made for HC.*
 - b. There has been no substantiation that pollutants from the Bay Area are transported into the Yolo-Solano District. The District suspects this may be the case and is just now developing a program to check this.*
 - c. Page 105 of the EIR states "Air Quality in the region will not be significantly affected." The District expects the

*Noted in the Text and in the EIR consultant's June letter and in backup material (Meisenheimer and Schatzki Supplemental Reports)

5/25/76

Air Quality will be affected, and this is apparently substantiated by the statement on page 110. "The traffic generated by the project will make a significant contribution to the air pollution loading in the local area and the county." And again on page 127, "...increased air pollution will result from the project."*

- d. On page 75, oxidant levels are discussed and the conclusion drawn is that one additional day in excess of the State Standard will result from the project. The District's opinion is that O3 levels should be evaluated on a ppm basis. Using this basis you would then find that an 8% increase in O3 level would result in more than one day in excess because of the number of days just under the State Standard. Also the District's primary concern is with the Federal Standard which is 0.08 ppm as compared to 0.10 ppm for the State Standard. At 0.08 ppm, there would be a considerable number of days in violation. In 1975 at Davis Station, O3 levels met or exceeded the Federal Standard on 24 days.*
- 4. CO levels at the Davis site indicated that during the year of 1975 there were three days in which the federal ambient air quality standards were met or violated for the 8-hour average. Since District tests have indicated that air quality levels in Vacaville are very similar to those levels in Davis, it is assumed that the traffic increase, as shown by the EIR, would likely cause additional violations upon completion of the project.*
- 5. The project's growth inducing impact on the City of Vacaville, along with separate and related industrial development in that general area of the county, will provide additional air pollutant levels which cannot be estimated at this time and are, of course, not covered in this environmental impact report. This, along with the projected industrial growth in neighboring localities, i.e. Rio Vista and Fairfield, should cause concern as to the type of industry, commercial establishments, etc., located in the industrial park.
- 6. The District feels this is a good opportunity for the Planning Commission to establish guidelines and regulations to consider the type of industry to be allowed. The exclusion of potentially "dirty" industry at the start would be beneficial to residents and potential residents of Vacaville. In any case, the District intends to issue Authorities to Construct and Permits to Operate on a case-by-case basis as the project develops.

James a Restaud

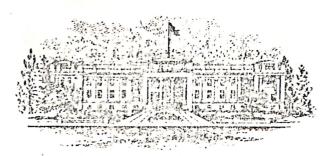
NOV 2 3 1977

AIR POLLUTION CONTROL

DISTRICT

P.O. BOX 1006 WOODLAND, CALIF. 95695

November 22, 1977



James A. Koslow
Air Pollution Control Officer
Telephone 666-8433

Mr. Chet Wystepek Associate Planner City of Vacaville 650 Merchant Street Vacaville, CA 95688

Dear Mr. Wystepek:

The Yolo-Solano Air Pollution Control District has some concern about the Maris Industrial Park draft EIR in that it did not recognize the potential air pollution problem that can be generated by any industrial subdivisions.

Those industrial uses mentioned on page 1 of the "Mitigating Measures," such as lumber yards with sawing equipment, metal machine shops with corresponding grinding and cleaning operations, appliance manufacturing with potential of using paint and solvents as well as bake ovens for curing operations, and any other industry with the potential to emit pollutants to the ambient air would have to apply to the Yolo-Solano APCD for evaluation of the need for Authorities to Construct and Permits to Operate. Additionally, the potential for nuisance complaints and the need for more extensive air pollution controls could arise if, in the future, residential areas were allowed to locate immediately to the north which could happen as stated on page 1, "Existing Noise Environment."

The District is of the opinion that the chart of "Site Generated Traffic" on page 4 should include total miles that the trips would generate and also an estimate of nitrogen oxides, hydrocarbons, and carbon monoxide emitted to the ambient air. This is in line with District policy of a yearly limitation on increased hydrocarbons and other pollutant emissions based on historical ambient data.

If you have any questions concerning this matter, or require more information, please call me.

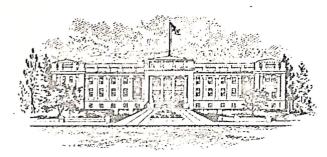
Sincerely,

Tom Armstrong

Jone armstron

Air Pollution Control Inspector

TA: JKA: es



James A. Koslow Air Pollution Control Officer Telephone 666-8433

YOLO-SOLANO

CITY MANAGER

AIR POLLUTION CONTROL DISTRICT

P.O. BOX 1006 WOODLAND, CALIF. 95695

December 22, 1977

Mr. Walter Graham, City Manager City Hall, 650 Merchant Street Vacaville, CA 95688

Dear Mr. Graham:

As a followup to our telephone discussion today, I am submitting comments on the Maris Industrial Park. These comments are intended to supplement those in the letter from Tom Armstrong to Chet Wystepek.

The District's air pollution emission regulations are quite restrictive and cover even many small activities, e.g., filling stations. In addition, the District has nuisance provisions which have been used to limit air pollution emissions.

The District has not set a program to approve or disapprove industrial parks or developments per se. Our position has been that planning and designating such parks and developments belongs with the responsible local Planning Commission.

In most cases the kinds of activities to be allowed in such parks and developments are somewhat general and the APCD cannot give specific requirements on any "unknown activity." However, once the park or development is receiving tenants, the District has a specific responsibility to evaluate each tenant as to requirements under air pollution regulations. A situation could occur where the District would not give a permit for some activity, even though the activity might be a satisfactory use for such park or development. Activities and/or facilities are evaluated on a case-by-case basis.

If you have any questions or comments, please call me.

Sincerely,

James A. Koslow

Air Pollution Control Officer

Hoslow

JAK: es

II. Vacaville Southwest Sector Draft EIR
Air Quality Excerpts
December 1977

II. A. Environmental Setting
-Air QualityVacaville Southwest Sector EIR
December 1977

AIR QUALITY

The study area is located in the Sacramento Valley Air Basin (Figure 8), which is regulated in part by the Yolo-Solano Air Pollution Control District (Y-SAPCD). Since only total suspended particulates are measured in Vacaville, air quality of Vacaville is discussed and compared with nearby cities.

CONDITIONS AFFECTING AIR QUALITY

Typically the mixture of gasses comprising pure air is contaminated by many gasses and particulate materials from natural—and human—generated origins. Natural sources can include volcanoes, wind-transported dust, pollen, biological processes in soils and water, and forest fires. Human—generated sources also can include dust and forest fires, but most important are coal and oil combustion, chemical processing, automobile exhausts, agriculture (burning and dust), and urban—related activities. Human—related sources can be controlled, and the impacts on health and aesthetics reduced. The degree of air pollution in an area varies with location, topography, types and quantities of emissions, and meteorologic conditions.

Topographic Influences

Because of the regional land form, the Vacaville area is prone to trapping and accumulating air pollutants emitted locally and in the Carquinez Strait. The Bay Area Air Pollution Control District (BAAPCD) reports that contaminants in the Bay Area (including the Carquinez Strait) are emitted at fairly constant rates on an annual average. However, meteorologic conditions and topography may cause actual concentrations co fluctuate locally and seasonally.

Winds

Light winds and atmospheric stability provide opportunities for pollutants to accumulate in the atmosphere. Oxidants which contribute to photochemical smog accumulate frequently in summer and early fall by the almost unbroken succession of sunny, warm days. Other pollutants become problems generally in the fall when there is little interchange of air between the Valley and the Pacific Coast.

Air pollutant concentrations are low when strong jet stream winds dominate the air flow over California and bring periodic storms accompanied by rain or upward vertical air flows. However, when high pressure areas persist in the Valley and Bay Areas, horizontal air flows resulting in light winds and downward vertical air movements permit air pollutants to concentrate.

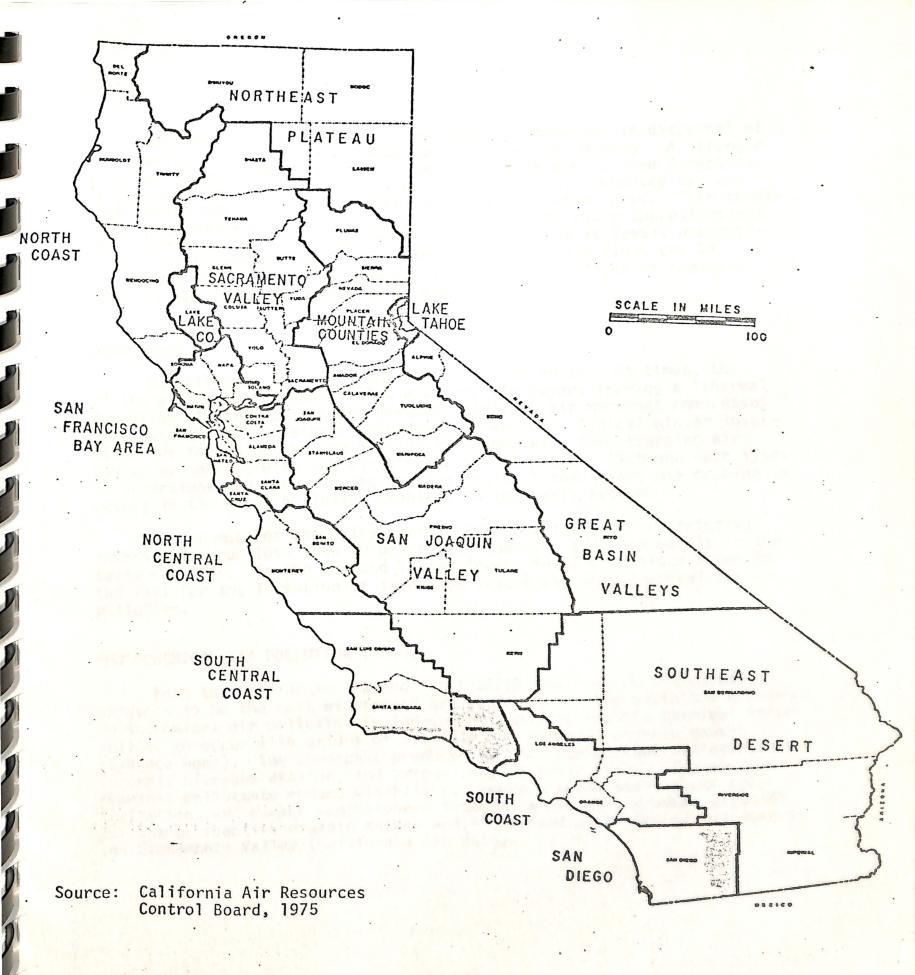


FIGURE 8 CALIFORNIA AIR BASINS - JULY 1, 1977

Horizontal wind speed and direction are important in dispersal of pollutants, especially in association with vertical mixing. A stronger wind will provide more dilution of pollutants; however, wind direction in sheltered valleys, such as in Vacaville, commonly reverses day and night which can eliminate the dilution effect of wind speed. This condition, compounded by a lack of vertical mixing, can cause the pollutants to be recirculated within the Valley and to persist at levels unacceptable by State and/or Federal standards. Vertical air flows can be restricted when a layer of warm air persists over a layer of heavier, cool air and forms an inversion of air layers.

Inversions

Normally, as air rises and disperses, it cools. At times, the rising air becomes trapped below a warmer air layer, forming a "thermal inversion" layer. In summer, downward vertical air movement compresses and heats the air causing a subsidence inversion. Typical winter inversions are formed by the sun heating the upper air, thus trapping air cooled by contact with the earth's surface at night. Although both types of inversions can occur during any season, both conditions may combine to result in the worst pollution problems in the early autumn.

During most of the rainy season, November to April, restrictive inversions occur less than 50 percent of the time and then mainly in the early mornings. In the Bay and Valley Areas, ideal conditions occur in the fall for the formation of inversion layers and photochemical air pollution.

PHOTOCHEMICAL AIR POLLUTION (SMOG)

Both the California ARB and the Y-SAPCD consider photochemical oxidants to be the most widespread and acute of all the pollutant problems. Photochemical air pollution is induced by sunlight causing chemical interactions to occur with oxides of nitrogen and reactive organic gasses (hydrocarbons). The chemicals produced by the interactions are oxidants (ozone), nitrogen dioxide, and peroxyacetyl nitrate (PAN). The photochemical pollutants reduce visibility, create a brown haze, cause eye irritation, and damage vegetation. Automobile exhausts produce about 61 percent of reactive organic gasses and 46 percent of oxides of nitrogen in the Sacramento Valley (California ARB data).

estatura de la compania del compania de la compania del compania de la compania del la compania de la compania del la compania de la compania de la compania del la compania de la compania del l

STALLOUGH CONTRACTOR SERVICE

Air Quality Standards

Air quality standards were established for the Sacramento Air Basin by State and Federal agencies (Table 4) to assure that the health of living organisms would be protected from avoidable adverse conditions caused by air pollution. Although some of the State standards for oxidant, carbon monoxide, sulfur dioxide, and suspended particulates have the same averaging time as those of the Federal standards, the numerical values of the standards are not the same. In these cases, compliance is based on the more stringent standard.

Federal air quality standards are divided into primary and seconday categories: Primary standards are designed to protect human health and the secondary to protect property and aesthetics.

Monitoring

Local air quality is monitored at air monitoring stations in Sacramento (since 1963), Woodland (since 1965) and Davis (since 1975). The Y-SAPCD maintains monitoring stations in Woodland and Davis for ozone (oxidants) and particulate measurements, and West Sacramento and Vacaville for particulates. In addition to monitoring at the stations, the ARB and Y-SAPCD use mobile vans to monitor air quality in specific areas. The monitoring provides the data base for air quality control strategies to control air pollutant emissions.

Air Quality Control Strategies

The Federal Clean Air Act of 1970 as amended, made the states primarily responsible for developing and submitting to EPA a State Implementation Plan (SIP) to attain national air quality standards. California's plan was approved by EPA in 1972 with the exception of transportation-related emissions. EPA promulgated a Transportation Control Plan (TCP) for California in 1973. The TCP is designed to achieve air quality standards by reducing mobile source emissions.

Another requirement of the Clean Air Act is the inclusion in SIP's of long-term air quality maintenance plans (AQMP) to maintain clean air objectives in an air quality maintenance area (AQMA). An AQMA is one in which air quality standards either are now exceeded or are expected to be exceeded in the ten-year period from 1976 to 1985. The San Francisco Air Basin and the southern part of the Sacramento Air Basin have been designated as an AQMA and have been incorporated into the Northern California Critical Air Area. A Critical Air Area has been identified recently by the State ARB (June 1976) as an area coterminous with AQMA's for achieving oxidant, carbon monoxide, and nitrogen dioxide standards.

TABLE 4
AIR QUALITY STANDARDS

	California	National		
Averaging Time	Concentration (ppm)*	Primary S (ppm)*	Secondary (ppm)*	Objective .
Oxidant 1 hour	0.10	0.08	0.08	Prevent eye and respiratory irrigation
Carbon Monoxide 1 hour	40	35	35	Prevent problems
8 hours 12 hours	10	9	9	of oxygen trans- port by hemoglobin
Nitrogen Dioxide	This is not			
l hour Annual Average	0.25	0.05	0.05	Reduce health risks and improv visibility
Suspended Particu- late Matter				
24 hours	100 Kg/m ³	260 Kg/m ³	150 Kg/m ³	Improve visibi- lity and reduce
Annual geometric mean	60 K g/m ³	75 _{×C} g/m ³	60 K g/m3	eye and respira- tory irritations
Sulfur Dioxide		China and		- no missing
1 hour 3 hours	0.5 . ~		0.5	Prevent respiratory irritation,
24 hours Annual average	0.04	0.14 0.03		plant damage, and odors
Sulfates 24 hours	25 _M g/m ³	a appenting		Prevent eye and respiratory irritation
Hydrogen Sulfide 1 hour	0.03	- terrar		Prevent odors
Hydrocarbons				minutes of the o
(corrected for methane) 3 hours	ry mark be	0.24	0.24	Reduce oxidant accumulation
Ethylene	or product by			Dunuant alast
1 hour 8 hours	0.5			Prevent plant damage
Lead 30-day				
Average	1.5 /g/m ³	Men ton		Prevent health problems
Visibility Reducing Particles 1 observation		and Copies and The part Charles	surer (refla	Improve visibility

^{*} Parts per million
Source: Bay Area Pollution Control District (BAAPCD), 1977
California Air Resources Board (CARB), 1976

Included in the AQMP process are indirect sources of air pollutants which must be considered: shopping centers, industrial parks, schools, airports, wastewater treatment plants, etc. These sources may not emit pollutants directly but stimulate traffic flow which emit pollutants.

Existing Air Quality

Since only total suspended particulates are monitored in Vacaville, air quality measurements from Fairfield, Woodland, Davis, and Sacramento are used to indicate probable air quality in Vacaville. The Y-SAPCD considers these data to be quite reliable indicators.

Only the oxidant standard and suspended particulate standards are exceeded in the Sacramento Valley (Figures 9 - 12). The number of days air quality standards are equalled or exceeded can be used as a measure of local air quality (Table 5). The general level of air pollution is indicated by comparing data in Table 5 to the air quality category designations in Table 6. The highest recorded hourly average of any category listed is used for the daily designation. The designations are used to advise people of the potential air pollution episode of the day (Table 7).

The State of California and Y-SAPCD have adopted these categories and criteria. Table 7 shows how these episodes and criteria are used to initiate Districtwide plans to help abate an air quality problem. During a smog advisory alert, localized to specific areas such as the Livermore Valley or Vacaville, persons with respiratory problems are advised to contact their physicians. Motorists are advised to curtail driving.

A districtwide alert could be declared to require suspension of open burning and limitation of incinerator use. In addition, industries must reduce emissions, and motorists are urged to eliminate all but essential driving. The alert can be continued by a warning which, in addition, requires Sunday hours be discontinued for all business, government, and industrial facilities. Under emergency criteria, all recreational and commercial facilities would be closed and the Governor's office notified. If necessary, the Governor could then prohibit all but emergency vehicular travel.

Study Area Air Pollution

Present air quality monitoring data indicate that carbon monoxide, sulfur dioxide, and oxides of nitrogen levels are below air quality standards. Oxidants and total suspended particulates are the two local air pollution problems identified by the Y-SAPCD. Also indication of air quality is the visibility standard which was exceeded 72 days in Fairfield in 1976.



NOTE: Concentrations for 1/74 - 5/75 reflect a change in ARB calibration procedures; all figures rounded to two decimal places.

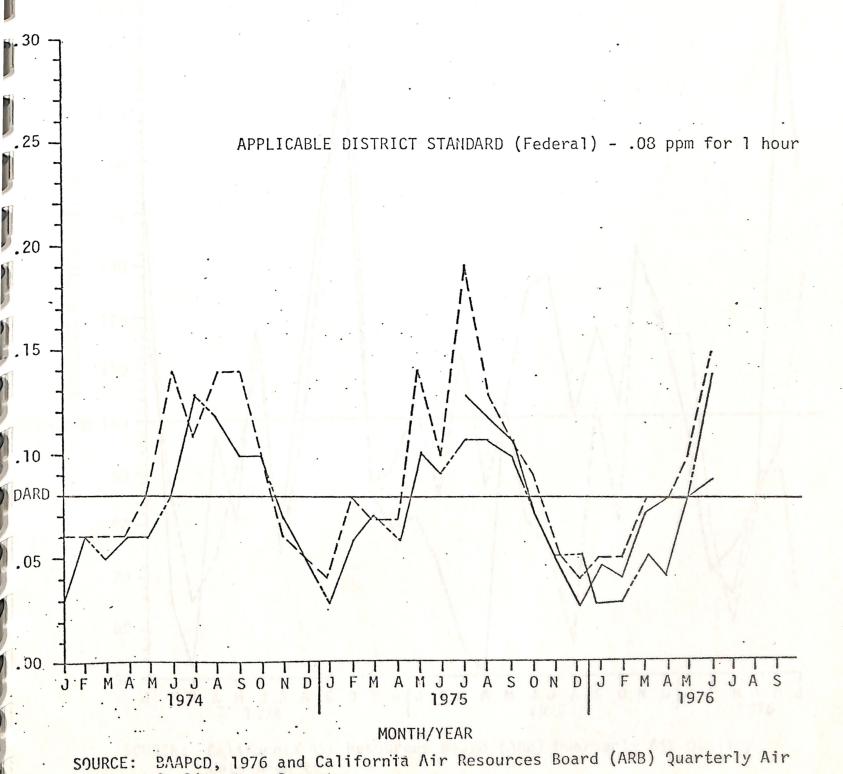
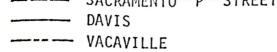
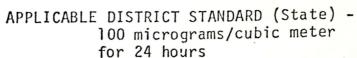
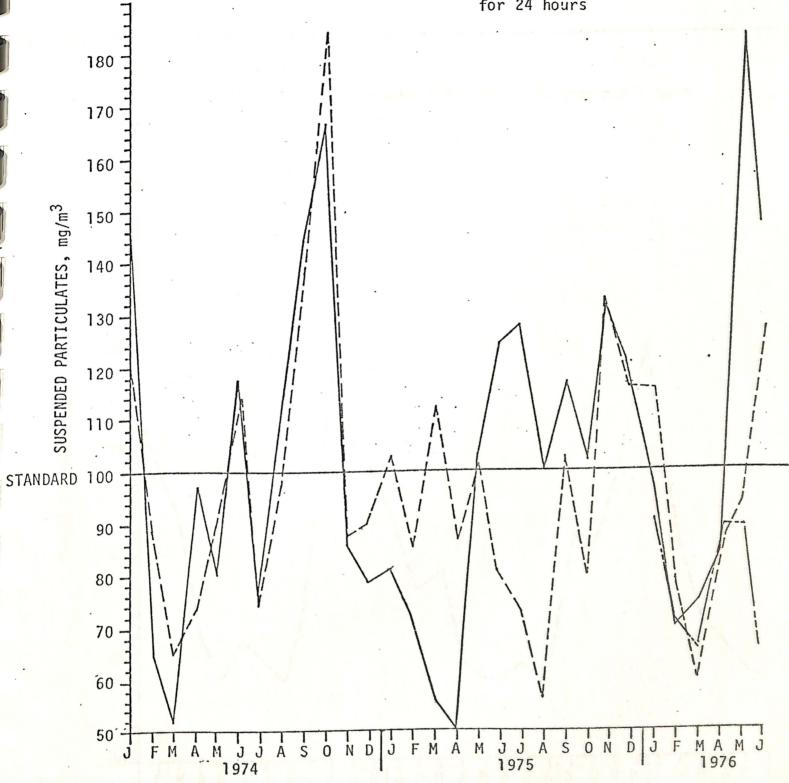


FIGURE 9 MAXIMUM 1 HOUR OXIDANT CONCENTRATIONS BY MONTH

Quality Data Reports

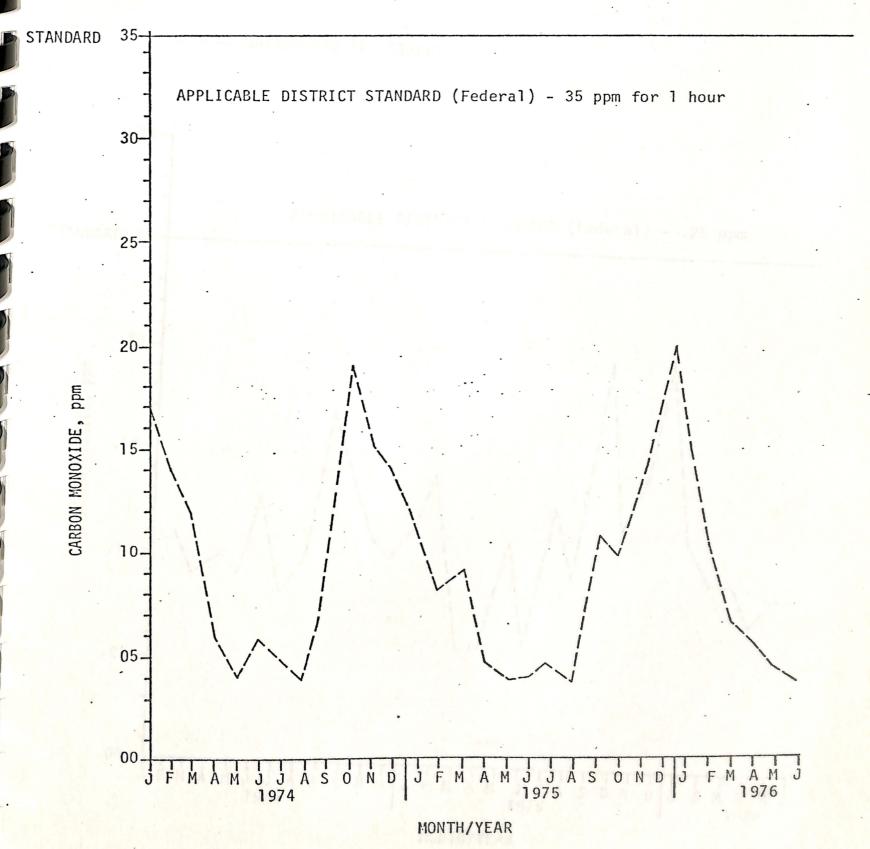






SOURCE: California Air Resources Board (ARB) Quarterly Air Quality Data Reports

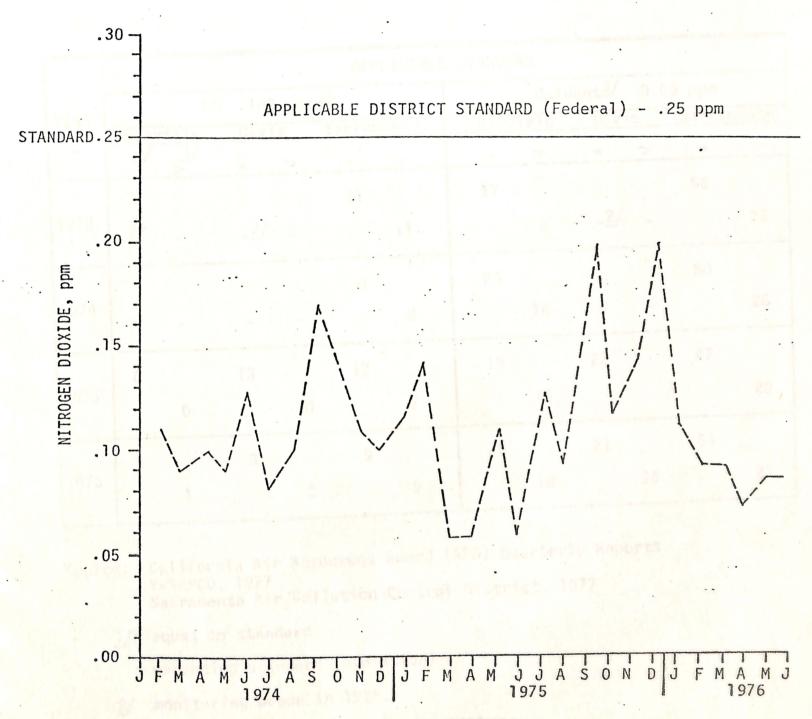
FIGURE 10 MAXIMUM 24 HOUR SUSPENDED PARTICULATES CONCENTRATIONS BY MONTH



SOURCE: California Air Resources Board (ARB) Quarterly Reports

FIGURE 11 MAXIMUM 1 HOUR CARBON MONOXIDE CONCENTRATIONS BY MONTH

* CO is not measured at any other local station.



MONTH/YEAR

SOURCE: California Air Resources Board (ARB) Quarterly Air Quality Data Reports

FIGURE 12 MAXIMUM 1 HOUR NITROGEN DIOXIDE COMCEMTRATIONS BY MONTH

TABLE 5

DAYS EQUALLING AND EXCEEDING APPLICABLE AIR QUALITY STANDARDS

Links	A.D				API	PLICABL	E STANDA	ARD	0-19		2)	. 5
VEAD	TSP 100 Hg/m ³					Oxidant3/ 0.08 ppm						
YEAR		ville	Davi		Sacran	nento	Fair	field	Dav		Sacram	ento
	= 1/	<u></u>	=	>	=	>	=	>	=	>	= 10	>
JOUTLA	8/0				11	in the	17				56	
1973	_2/	coluci	_2/	itire 187. t	to ast	11	0117 8 4 545	8	<u>-2/</u>	ur - 10 € 1/3	ed pont	36
a tan	ard t	7, 100,	Carn.		8		26		a year	the	50	Mary
1974				-		8		16	-	-		26
1975	0		13		12	12.7	19		22		47	
		0		10	one si	7	35424	15				20
1076	1		3		9		25		21		51	
1976		1		3		9	tid fin	18		16	Pigni	27

Source: California Air Resources Board (ARB) Quarterly Reports

Y-SAPCD, 1977

Sacramento Air Pollution Control District, 1977

1/= equal to standard

> exceeding standard (violation)

2/ monitoring begun in 1975.

3/ Oxidant is not measured in Vacaville.

TABLE 6

AIR QUALITY CATEGORY DESIGNATIONS

Designation	Oxidant (ppm)	Nitrogen Dioxide (ppm)	Carbon Monoxide (ppm)	Particulates* (CoH units)
Clean Air	.0005	.0010	0- 5	. 05
Light A.P.	.0609	.1114	6-10	.6-1.5
Significant A.P.	.1015	.1520	11-15	1.6-2.5
Heavy A.P.	.1625	.2130	16-20	2.6-3.5
Severe A.P.	.25	.30	20	3.5
Emergency	.60	1.60	100	10

Source: BAAPCD, 1976 Air Pollution in the San Francisco Bay Area.

TABLE 7
EPISODE STAGE CRITERIA

	Oxidant	Carbon Monoxide	Sulfur Dioxide		
Averaging Time	1 hour	1 hour-12 hours	1 hour-24 hours		
Smog Advisory Alert	0.20 ppm	40 ppm 20 ppm	0.5 ppm 0.2 ppm		
Warning	0.35 ppm	75 ppm 35 ppm	1.0 ppm 0.7 ppm		
Emergency	0.50 ppm*	100 ppm* 50 ppm	2.0 ppm 0.9 ppm		

*And predicted to persist for one additional hour.

Source: Bay Area Air Pollution Control District (BAAPCD)

^{*} This is a relative measure to estimate hourly and daily suspended particulate concentration. It is <u>not</u> the 24-hour total suspended particulate concentration quantitative measure used to determine compliance with the air quality standard of $100 \,\mu\text{g/m}^3$.

Table 5 shows the number of days that air quality standards were exceeded in cities near Vacaville. Total suspended particulates have been measured in Vacaville and nearby Davis since mid-1975. Although no other emissions are monitored in Vacaville, oxidant data are available from measurements in Fairfield, Woodland, Davis, and Sacramento.

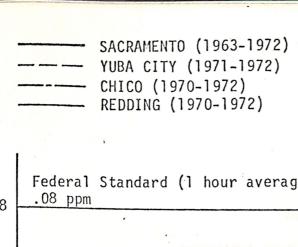
The days that exceed the oxidant standards occur from June to October with the greatest number in August. These days appear to be associated with periods of air stagnation that are more prevalent in the hot months of the year. The Y-SAPCD considers oxidants to be the most critical air pollutant in the AQMA. Data for 1963-1972 are averaged on Figure 13. Local winds through the Carquinez Strait are believed to carry significant quantities of oxidants into the Y-SAPCD, thus contributing to local, elevated oxidant levels. In Woodland in 1976 the oxidant standard (0.08 ppm) was not or exceeded on 34 days. Measurements by the Y-SAPCD show maximum readings to be decreasing from 0.17 ppm in 1974 to 0.14 ppm in 1975 and about 0.11 ppm in 1976.

The Y-SAPCD suggests that the majority of the local generation of suspended particulates in from agricultural activities. In Vacaville, 61 samples exceeded the annual geometric mean of $60\,\mathrm{Hg/m^3}$. Of the 61 total suspended particulates samples, five exceeded the State 24-hour Standard of $100\,\mathrm{Hg/m^3}$ and two samples exceeded the Federal 24-hour Secondary Standard of $150\,\mathrm{Hg/m^3}$. The Federal Carbon Monoxide eight-hour Secondary Standard (9.0 ppm) was exceeded on 3 days each in 1975 and 1976 in Woodland.

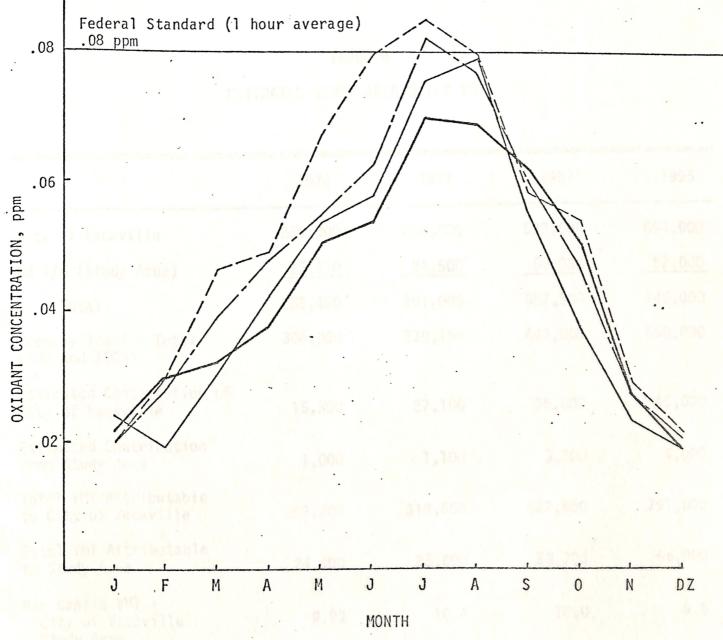
Existing Air Pollutant Emissions

In assessing emissions for both stationary and mobile sources, data from the California ARB, Y-SAPCD, and Caltrans were used. Using Y-SAPCD emission data and census information, per capita emission factors for stationary source categories applicable to the study area were determined and an estimate made of existing stationary emissions. Freeway and local mobile source emissions were determined using Caltrans and local traffic data from which the number of vehicle miles traveled (VMT) daily on local highways and city streets were calculated (Table 8). Vehicular mix was determined for Vacaville from Solano County motor vehicle registration data contained in the California ARB Report No. ARB/EP-76001.

Motor vehicle emission rate factors used are published in the California ARB Report No. ARB/EP 76001. The factors for 1977, 1985, and 1995 were used to calculate mobile source emissions. Existing local emission estimates for Vacaville are summarized in Table 9.



NOTE: Concentrations reflect the June 1975 change in ARB calibration procedures.



SOURCE: California Air Resources Board (ARB) 1973 Air Quality in the Sacramento Valley Air Basin

FIGURE 13 MONTHLY OXIDANT CONCENTRATION VARIATION AVERAGE OF DAILY MAXIMUM ONE-HOUR CONCENTRATIONS AT SACRAMENTO VALLEY STATIONS

TABLE 8
ESTIMATED STUDY AREA DAILY VMT

Emitsions Category	1975	1977	1987	1995
City of Vacaville	260,000	266,500	537,500	694,000
SW 1/4 (Study Area)	23,400	24,500	50,000	52,000
Total	283,400	291,000	587,500	746,000
Freeway Traffic Total (I80 and I505)	306,000	339,150	449,000	560,000
Estimated Contribution of City of Vacaville	15,300	27,100	35,000	45,000
Estimated Contribution from Study Area	1,000	1,100	3,200	4,000
Total VMT Attributable to City of Vacaville	299,700	318,500	622,500	791,000
Total VMT Attributable to Study Area	24,400	25,600	53,200	56,000
Per Capita VMT City of Vacaville Study Area	9.99	10.4	10.0	9.5
Total VMT Attributable to Four Proposed Projects	7 6 2 -0-	-0- ·	12,000	11,500

Source: City of Vacaville Traffic Department 1977 and Caltrans, 1977.

TABLE 9 ESTIMATED EMISSIONS, VACAVILLE 1977

			t Emissions tons/day)	1/	
Emissions . Category	Particulates	Organic Gases	Oxides of Nitrogen	Sulfur Dioxide	Carbon Monoxide
Mobile Sources Totals:	Jan 1 . We	rate of the second	Andrew Co.		
I-80 & I-505	.15	2.02	1.28	0.07	1.4.05
I-80 & I-505 Emissions Attributable to Local Traffic	0.02	0.31	0.20	0.01	1.32
Local Street Traffic	0.13	1.92	1.02	0.05	12.93
Urban Stationary Sources	0.78 2/	0.92	0.15	NEGLIGIBLE	0.86
Total Emissions Attributable to Local Sources	0.93	3.15	1.37	0.06	15.11
Point Sources	7.6 <u>2</u> /	1.8 3/	1.0	NEGLIGIBLE	1.1 2/

Source: CARB, 1976. Emission Inventory 1973.

Population estimate = 33,000
Major sources are agriculture related industries.
The major source is petroleum product marketing.

representative as quality measurement from the other powls, and her passes are used to exclusive the district to the recovities II. B. Environmental Assessment -Air Quality-Vacaville Southwest Sector EIR December 1977

as the real of mobile country broken and were because of principles are placed as the

by print theorem, the lader the patentines from the course being area.

that would occur life the respect of an arrangement of

The second of the second of the second of the second of the second of the second of the second of the second of

The entranslation in the company to bles were and an experience with the and the figures. The little to the little wind the Sah Line of the explicit one builting the other and

Typics of protein 27

police or wich point is area.

Makilla Seurce lentasione con fecuratacea cu and 600 mire. Caleriors projections for tonicle sizes provided (while the distribution

am Pigning and projection transit increased to ""

Future air potlucing and extens and that a tryick on air section in the

Vacaville area would be a result of business and the real state of the second state of the second se

The state of the control of the cont

(NOT) of tocal atrects for the same of the

Bacanso buly total suspensed particulars our measures to vagarilla.

. ATR CUALITY

AIR QUALITY

Future air pollutant emissions and their impact on air quality in the Vacaville area would be a result of changes in mobile source emissions and the urban growth projected for the general area of the project. Population estimates used for these analyses were derived from "Goal Future Scenario" prepared by the Solano County Transportation Council, 1977.

<u>Methodology</u>

Stationary source emissions were estimated by determining per capita emission factors for stationary source categories (CARB, 1976b). Mobile source emissions were calculated from the number of vehicle miles traveled (VMT) on local streets (City of Vacaville, 1977) and freeways (Caltrans, 1977). Component emission factors for 1975, 1977, 1987, and 1995 were used in calculating mobile source emissions (CARB, 1976a). Estimates of 1977 Vacaville emissions are summarized in Table 9.

Because only total suspended particulates are measured in Vacaville, representative air quality measurements from Woodland, Davis, and Sacramento are used to estimate air quality in Vacaville.

Estimates of future stationary emissions were based on 1973-1975 per capita stationary source emission factors (CARB, 1976b) and Vacaville population projections. Major point sources emitting contaminants were separated from population related emissions to show the impact of urban development. Emissions from point sources were assumed to be constant from the base year 1975 to 1995.

Mobile source emissions for Interstates 80 and 505 were based on Caltrans projections for vehicle miles traveled (VMT). On City streets, estimates of mobile source emissions were based on existing per capita mileage figures and proportional increases in VMT.

Estimated emissions for Vacaville are shown in Tables 25, 26, and 27 for base year 1975, as well as 1987 and 1995. Population projections are based on "Goal Future Scenario" estimates provided by the Solano County Transportation Council. Emissions estimates attributable to local sources include stationary sources, local City street traffic, and the emissions on I-80 and I-505 attributable to local traffic. Emissions estimates for the four proposed projects, shown separately, include both mobile source and stationary source emissions for the projects. Total emissions attributable to local sources includes the emissions from the entire study area.

The data shown in these three tables were used to construct the curves shown in Figures 24, 25, 26, and 27 which illustrate an emissions trend until 1995.

Emission projections for the five major pollutants are shown on Figures 24 through 27. The projections show one set of curves for each pollutant with point source emissions and one set without. The dashed line (no project) in each set of projections indicate the emissions reductions that would occur if the four projects are not developed.

TABLE 25
ESTIMATED EMISSIONS, VACAVILLE - 33,000 POPULATION

Emission	Particulates		t Emissions er day)	Plantae	Ndvax/ep
Category	Particulates	Organic Gases	Oxide of Nitrogen	Sulfur Dioxide	Carbon Monoxide
Total Mobile Sources on I-80 & I-505	0.16	2.21	1.24	0.06	16.02
I-80 & I-505 Emissions Attributable to Local Traffic	0.01	0.11	0.06	Negligible	0.80
Local Street Traffic	0.14	2.18	1.03	0.04	15.34
Urban Stationary Sources	0.71	0.84	0.14	Negligible	0.78
Total Emis- sions Attributable to Local Sources	0.86	3.13	1.23	0.04	16.92
Point <u>1</u> / Sources	7.6	1.8	1.0	Negligible	1.1

^{1/} Not included in emissions attributable to local sources.

TABLE 26 ESTIMATED EMISSIONS, VACAVILLE - 62,000 POPULATION PROJECTION

Emission			t Emissions per day)	and the state of t	Legender in the Control
Category	Particulates	Organic Gases	Oxide of Nitrogen	Sulfur Dioxide	Carbon Monoxide .
Total Mobile Sources on I-80 & I-505	0.15	1.05	1.18	0.09	6.96
I-80 % I-505 Emissions Attributable to Local Traffic	0.03	0.33	0.29	0.02	0.87
Local Street Traffic	0.18	1.52	1.25	0.08	9.50
Urban Stationary Sources	1.46	1.74	0.29	< 0.01	1.61
Total Emis- Sions Attributable to Local Sources	1.67	3.59	1.83	0.10	11.98
Four Proposed Projects	0.13	0.29	0.15	< 0.01	0.96
Point <u>l</u> / Sources	7.6 2/	1.8 3/	1.0 3/	Negligible	1.1 2/

Not included in total emission attributable to local sources.
Major sources are agriculture-related industries.
The major sources are petroleum product marketing and minor industries.

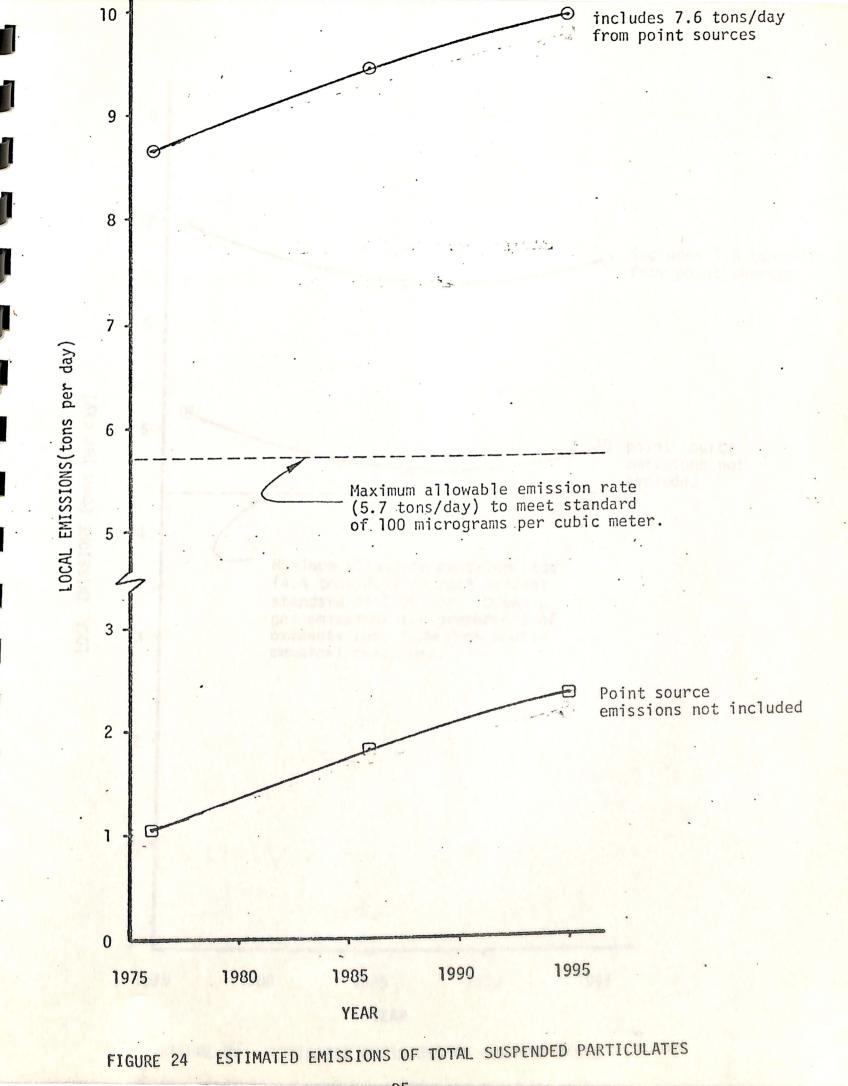
TABLE 27 ESTIMATED EMISSIONS, VACAVILLE - 79,300 POPULATION PROJECTION

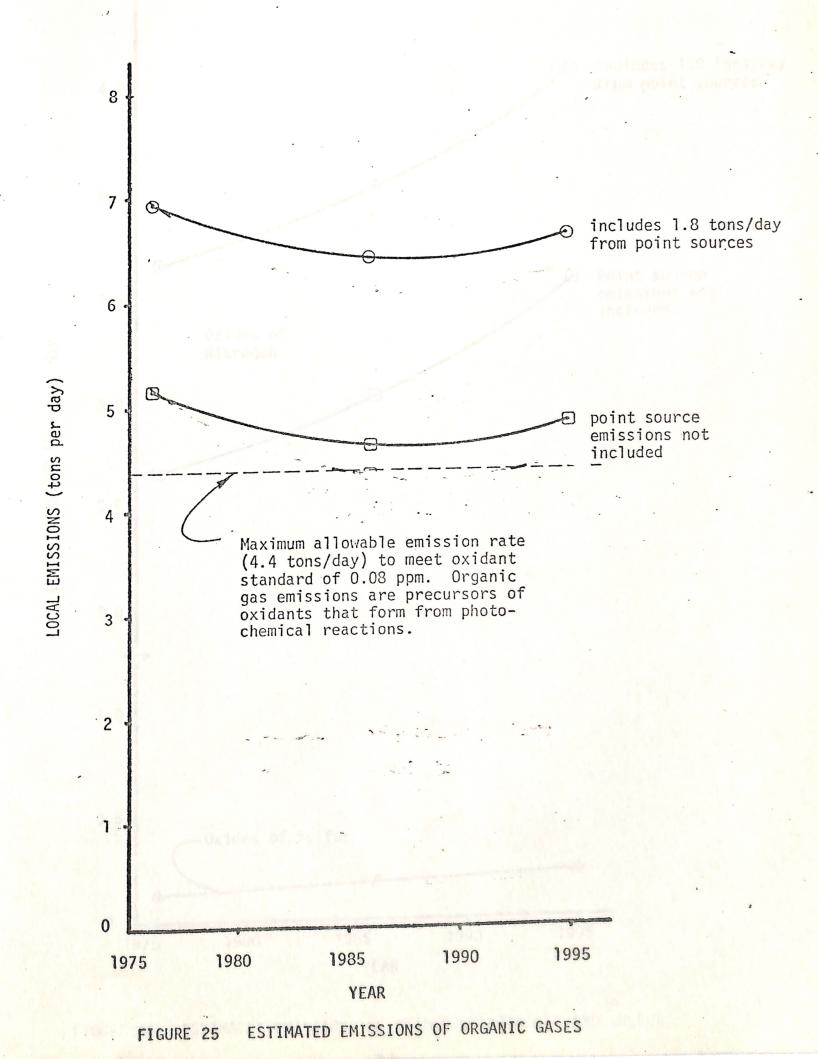
Emission			Emissions per day)		
Category	Particulates	Organic Gases	Oxides of Nitrogen	Sulfur Dioxide	Carbon Monoxide
Total Mobile Sources on I-80 & I-505	0.18	0.95	1.40	0.11	6.82
I-80 & I-505 Emissions Attributable to Local Traffic	0.06	0.20	0.30	0.02	1.49
Local Street Traffic	0.22	1.47	1.50	0.10	9.60
Urban Stationary Sources	1.86	2.22	0.37	- 1/	2.06
Total Emis- sions Attributable to Local Sources	2.14	3.89	2.17	0.12	13.15
Four Proposed Projects	0.13	0.29	0.15	<0.01	0.96
Point 2/ Sources	7.6 3/	1.8 4/	1.0 4/	None	1.1 3/

Not predictable at this time due to the uncertainty of the potential 1/ future use of sulfur rich fossil fuels.

2/3/4/ Major sources are agriculture-related industries. The major sources are petroleum product marketing and minor industries.

Not included in emissions attributable to local sources.





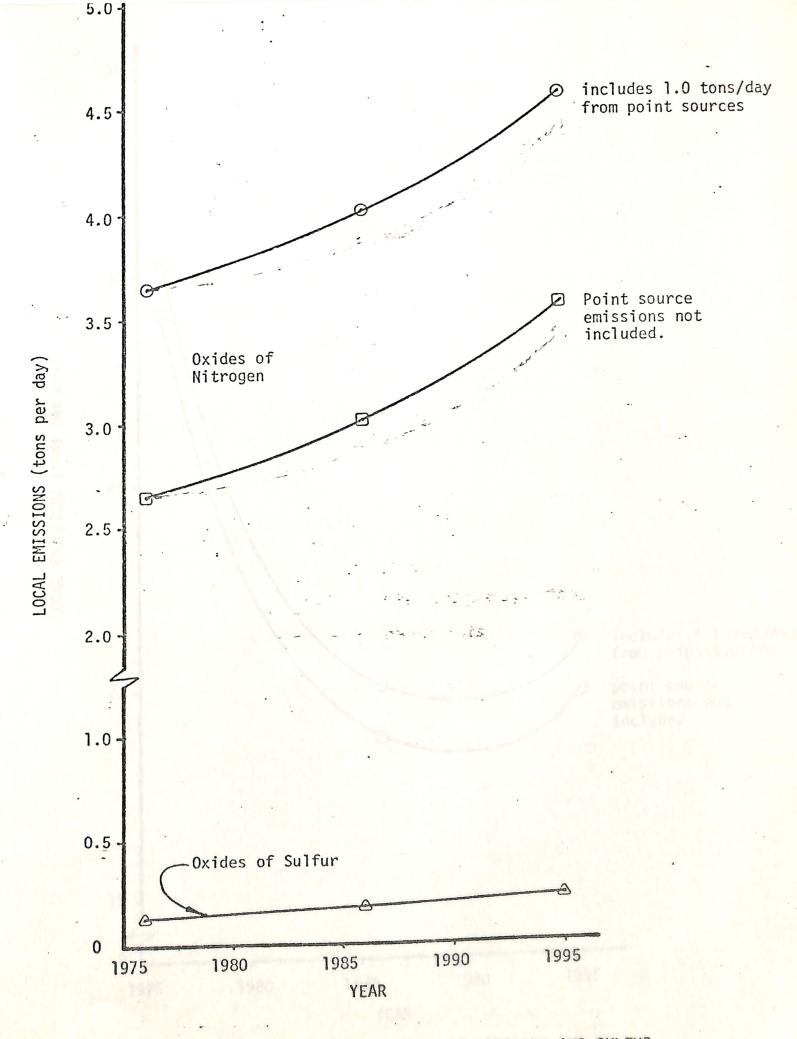
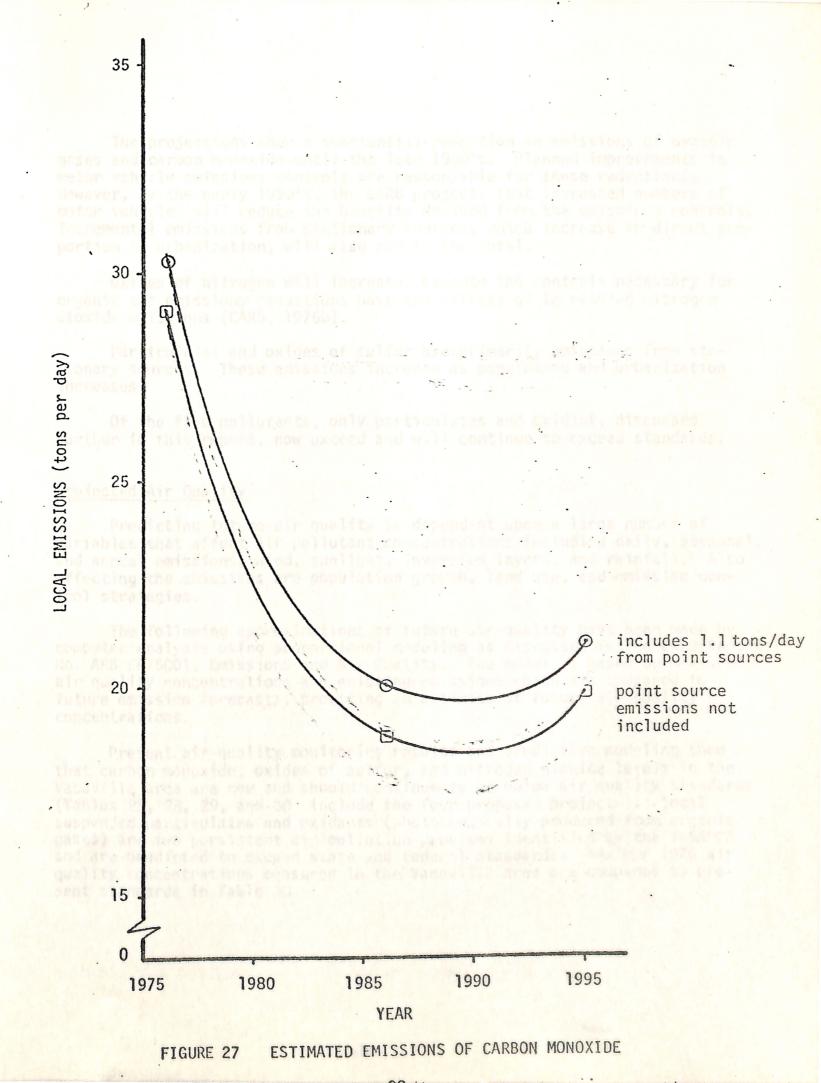


FIGURE 26 ESTIMATED EMISSIONS OF OXIDES OF NITROGEN AND SULFUR



The projections show a substantial reduction in emissions of organic gases and carbon monoxide until the late 1980's. Planned improvements in motor vehicle emissions controls are responsible for these reductions. However, by the early 1990's, the CARB projects that increased numbers of motor vehicles will reduce the benefits derived from the emissions controls. Incremental emissions from stationary sources, which increase in direct proportion to urbanization, will also add to the total.

Oxides of nitrogen will increase, because the controls necessary for organic gas emissions reductions have the effects of increasing nitrogen dioxide emissions (CARB, 1976b).

Particulates and oxides of sulfur are primarily emissions from stationary sources. These emissions increase as population and urbanization increases.

Of the five pollutants, only particulates and oxidant, discussed further in this report, now exceed and will continue to exceed standards.

Projected Air Quality

Predicting future air quality is dependent upon a large number of variables that affect air pollutant concentrations including daily, seasonal, and annual emissions, wind, sunlight, inversion layers, and rainfall. Also affecting the emissions are population growth, land use, and emission control strategies.

The following approximations of future air quality have been made by computer analysis using proportional modeling as discussed in the CARB Report No. ARB-EP76001, Emissions and Air Quality. The model is based on measured air quality concentrations and existing emissions which are compared to future emission forecasts, providing an estimate of future air quality concentrations.

Present air quality monitoring results and predictive modeling show that carbon monoxide, oxides of sulfur, and nitrogen dioxide levels in the Vacaville area are now and should continue to be below air quality standards (Tables 25, 28, 29, and 30 include the four proposed projects). Total suspended particulates and oxidants (photochemically produced from organic gases) are two persistent air pollution problems identified by the Y-SAPCD and are predicted to exceed state and federal standards. Maximum 1975 air quality concentrations measured in the Vacaville area are compared to present standards in Table 30.

The Color particular for the field the Calling Color and Alphone a

PREDICTED AIR QUALITY FOR VACAVILLE 1/

Pollutant	Standard	1987	Change from 1975	1995	Change from 1975
Particulates	100 Kg/m3	163	+ 8.6%	173	+14.6%
Oxidants	0.08 ppm	0.117	-10 %	0.12	- 7.6%
Nitrogen Dioxide	0.25 ppm	0.15	+ 6 %	0.18	+22 %
Oxides of Sulfur (as sulfates)	25 /{g/m ³	20	+44 %	23	+51 %
Carbon Monoxide	35 ppm	11.5	-43 %	11.7	-42 %

^{1/} Includes four proposed projects and assumes point source emissions are constant from base year to 1995.

TABLE 29

REDUCTIONS NECESSARY TO MEET AIR QUALITY STANDARDS

Use Suspensed Pa	4: 0 7:	1987		1995	
Pollutant	Air Quality Standard	percent	tons	percent	tons
Particulates	100 Kg/m ³	39	3.7	42	4.2
Oxidants	0.08 ppm	32 .	2.1	33	2.2
Nitrogen Dioxide	0.25 ppm3	Compliance		Compl	iance
Sulfates	25. Hg/m ³	Compliance		Compl	iance
Carbon Monoxide	35 ppm	Compliance		Comp1	iance

The three air pollutants (NOx, SOx, and CO) will meet standards.
See Table 30 for changes in predicted air quality.

TABLE 30
ESTIMATES OF MAXIMUM AIR POLLUTANT CONCENTRATIONS

urbons) in the at		Maximum Measured	Maximum (m Predicted	
Pollutant	Standard	1975	1987	1995	
Particulates	100 / g/m ³	150	163	172	
Oxidants -	0.03 ppm	0.13	0.11	0.12	
Nitrogen Dioxide	0.25 ppm	0.14	0.15	0.18	
Sulfate or source	25 Hg/m ³	active onto 11. gests	20	. 23	
Carbon Monoxide	35 ppm	20	11.5	11.7	

^{1/} Estimates include the four proposed projects in the study area.

Total suspended particulates and oxidants are two pollutants that will require further action in the future.

Total Suspended Particulates

The intermittent, high concentrations of particulate matter in the Vacaville area are caused by both natural and human activities with agricultural related industries accounting for the greatest amount (Y-SAPCD, 1977). In 1976 the annual geometric mean standard of $60\,\mathrm{Mg/m^3}$ was exceeded at $62\,\mathrm{Mg/m^3}$ in 61 samples. Of these samples, five exceeded the state 24-hour standard of $100\,\mathrm{Mg/m^3}$ and two samples exceeded the federal 24-hour secondary standard of $150\,\mathrm{Mg/m^3}$ (Y-SAPCD, 1977).

Compliance with the 24-hour standard (100 g/m³) may be met with a reduction in emissions of about 39 percent (3.7 tons/day) by 1987 and 42 percent (4.1 tons/day) by 1995. Under each growth pattern, particulate matter will increase and may require source control of emissions from local industries as well as controllable agricultural activities.

inga serie galanda del 17 <mark>jenno lipety desettiment tio del A</mark>scollègico del Este Calabri Dell'Estado de Statementos del proposito del Calabrio del Development of the remaining noncommitted lands in the study area could be expected to increase the total suspended particulates emissions by an additional 0.13 tons per day (Table 26).

0xidants

Oxidants result from chemical interactions of organic gases (hydrocarbons) in the atmosphere at high temperatures with high atmospheric stability. The reactivity of organic gases in photochemical processes is an important consideration in emission assessment and control stragegy development (CARB, 1976a). The reactivity classes of organic gases include non-reactive (methane) and reactive (non-methane) gases. About 90 percent of organic gas emissions from gasoline- and diesel-powered motor vehicles are reactive. Of these, about 40 percent are highly reactive and can produce oxidants (ozone) within a few hours of solar irradiation. Another 45 percent are classified as moderately reactive and can produce intermediate yields of oxidants within the first day of solar irradiation.

Other sources of highly reactive organic gases include stationary sources such as combustion of fuel, organic solvent use, food and agricultural processing, and pesticide application.

An assessment of stationary organic gas sources and their relative reactivity has not been made for this analysis since the composition and reactivity of organic gas emissions in the study area are unknown. Therefore, it was assumed that all organic gas emissions were reactive. Under this worst-case assumption, organic gas emission reductions of 27 percent (1.7 tons/day) in 1987 and 33 percent (2.1 tons/day) by 1995 would be necessary to meet the oxidant standard of 0.08 ppm (Table 29). This estimate was calculated using the EPA rollback model (CARB, 1976a). Peak one-hour oxidant measurements were used to determine the organic gas emission reduction necessary to meet the standard. It was also assumed that a local reduction in organic gas emissions would be accompanied by similar regional hydrocarbon reductions.

As shown in Figure 25 and Table 30, the reduction in organic gases for the "no project" alternative will still exceed the federal primary standard. Therefore, further reductions in point source emissions would be necessary for the City of Vacaville to meet air quality standards for oxidants by 1987 and 1995.

It is estimated that development of the remaining noncommitted land in the study area will result in additional emissions of organic gases up to 0.58 ton per day.

Since air quality standards were established to protect public health, exceeding them is considered significant. However, it should be noted that whether or not the study area becomes developed, the standard for organic gases will probably continue to be exceeded in the future. A comprehensive statewide emissions control program will be required to alleviate this problem.

Oxides of Nitrogen and Sulfur

The Y-SAPCD has conducted limited sampling of NO2 and SO2, however, testing indicates there is no apparent problem (Y-SAPCD, 1977). The NO2 levels are now and anticipated to remain lower than both state and federal standards. On the other hand, emissions of oxides of nitrogen are predicted to increase above present levels (Tables 26 and 27, and Figures 24 and 25) as a result of increases in domestic and industrial combustion of fuels. Although nitrogen dioxide levels will remain far below the 0.25 ppm standard, increases in the emissions should be monitored to determine their involvement in atmospheric formation of oxidants and discoloration of the air. Because nitrogen dioxide is harmful to vegetation, increases should be identified and proper abatement strategies considered.

3. VacaValley Industrial ParkPhase II, Final EIR-Air Quality Excerpt-May 1976

AND THE PERSON OF THE PARTY OF

the second second second second second

E. CLIMATE AND AIR QUALITY

The effect of developing the Vaca Valley
Industrial Park on the regional climate (over distances greater than 2 or 3 miles) will be very small. The addition of structures on the site will reduce the wind speed over the site by 10-15%. Since air motion is beneficial in dissipating heat and dispersing pollutants, effort should be made to minimize obstructions of air flow. In addition, plans should allow for as much dispersion of structures as is possible, with open green belts in between.

The traffic generated by the project will make a significant contribution to the air pollution loading in the air basin (about 5.6% of 1976 oxidant emissions in the basin). By 1986 this increase can be expected to cause five additional days per year in which 8 pphm standards are exceeded, and 3 additional days per year that the 10 pphm standard would be exceeded. A 1.7% increase in oxidants is also expected. For the worst case CO concentrations, the 1 hour standard will not be exceeded.



